FACULTY OF FINANCE, INSURANCE, BANKING AND STOCK EXCHANGE (FABBV)
within Bucharest Academy of Economic Studies

FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION (FEAA)
within West University of Timişoara

SIF Banat-Crişana

11th International Conference

Financial and Monetary Stability in Emerging Countries

In memoriam of Professor PAUL BRAN, PhD.
Rector of Bucharest Academy of Economic Studies between 1996-2004

DECEMBER 10-11, 2010

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"Our existence as individuals, as a society would not be possible without the continuous supply of value"

Professor Paul BRAN, PhD

Rector, Bucharest Academy of Economic Studies between 1996-2004

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Foreword

Each year the Department of Finance within Faculty of Finance, Insurance, Banking and Stock Exchange (FABBV) of the Bucharest Academy of Economic Studies, in partnership with the SIF Banat-Crisana and Faculty of Economics and Business Administration (FEAA) at the West University of Timisoara, organizes international scientific conference with a themed adapted to scientific concerns, theoretical and practical debates on finance and banking.

In 2010 the international scientific conference theme was "FINANCIAL AND MONETARY STABILITY IN EMERGING COUNTRIES" which managed to assemble a large number of participants from more than 150 from academic and research institutions in Romania and abroad.

The conference was dedicated to the memory of Professor PhD Paul BRAN, Rector of the Bucharest Academy of Economic Studies during 1996-2000 and 2000-2004. With this occasion personalities from Romania and Moldova have expressed feelings of appreciation for teaching, scientific and managerial activities of the Professor Paul BRAN.

The solemn moment of this event was the bust unveiling of the Professor Paul BRAN made by the sculptor Professor Bogdan HOJBOTA with the financial support of the Romanian National Bank. Also, the Senate of the Academy of Economic Studies at the proposal of Mr. Rector Prof. Ion Gh. ROȘCA decided to change the name of building from the address Street Mihail Moxa no. 7, Bucharest, in Paul BRAN building which was built between 2001-2004 under the initiative and coordination of Prof. Paul BRAN.

The Finance Department within Faculty of Finance, Insurance, Banking and Stock Exchange (FABBV) of the Bucharest Academy of Economic Studies has initiated the Paul Bran Diploma of Excellence for the promotion of Romanian economic education, the prestigious professional and scientific activity, and excellence in the field of institutional management. The diploma was handed over 100 personalities of the Romanian economy.

Papers presentation of the conference was conducted in the five areas of concern such as Insurance, Corporate Finance, Public Finance, Financial Markets and Institutions, Macroeconomic Stability, focusing on the multidisciplinary nature of teachers and encouraging participation of young researchers.

The discussions on each section were interesting, closely linked to concrete issues and current state of the economy and finance. Approaches have targeted key goals of policy and management at national, and European and world level.

We thank Romanian National Bank's Governor, Academician Professor PhD Mugur ISĂRESCU, and to the board members of the Romanian National Bank for the financial support regarding the Professor Paul BRAN's bust.

In this way we wish to convey thanks to the leadership of the Bucharest Academy of Economic Studies and partners of the scientific conference for the moral support provided.

Congratulations for the Scientific and Organizing Committee of the conference whose activities led to the complete organization and implementation of this conference.

Also, we wish to thank all those who have been with us and who have participated at this international conference.

PART I
In memoriam professor PAUL BRAN, PhD

PROFESSOR PAUL BRAN, AN OUTSTANDING PERSONALITY AND AN INNOVATOR

Ion Gh. ROŞCA
Bucharest Academy of Economic Studies

Paul Bran (1940-2006)
(Rector of the Bucharest Academy of Economic Studies: 1996-2004)

He was born on the 3rd of September 1940 in Topolog, Tulcea County. He graduated from the Faculty of Finance – Credit within the Academy of Economic Studies in 1965. After graduation, he became an Assistant Lecturer in the same institution. In 1975, he completed his PhD within the Academy of Economic Studies. He attended several research internships in Switzerland (1975) and the USA (1994), dealing with financing Small and Medium Enterprises. The positions he held include, among others:

- *Tenured Professor in the Department of Finance, starting with 1990;*
- *Counsellor in the government headed by Petre Roman (1990);*
- *Counsellor for economic reform of the Romanian Prime Minster (1991-1993);*
- *Head of the Department for Economic Reform in the Government of Romania (1990-1991);*
- *President of the General Association of Romanian Economists (2001-2006);*
- *PhD Coordinator, in the domain of International Financial and Monetary Relations, since 1990;*
- *Rector of the first economic higher education institution in the Republic of Moldova, an institution he founded himself (1991-1994);*
- *Economic counsellor in the Government of the Republic of Moldova (1991-1994);*
- *Member in the Board of Administration of the Romanian Commercial Bank (1990-1993, 1997-2000);*
- *President of the Censor Board of the Romanian National Bank (1998-2004).*

Professor Paul Bran represents an outstanding figure in economic education and research; he has created a modern school, to which he was an exceptional manager; through his remarkable personality, he has revolutionized Romanian higher education.

He attended the Mircea cel Batran theoretical secondary school in Constanta (1951-1959) and the faculty of Finance – Credit within the Bucharest Academy of Economic Studies (1960-1965); subsequently, he was offered a position as Assistant Lecturer at the Department of Finance in the University he had graduated from.

In 1975, he completed his PhD in Economics (Finance). His final dissertation focused on the issue of the financial reasoning behind economic decisions at a micro-economic level.

In 1975, he participated in a research internship in Switzerland, within the Institute of High Economic Studies in Geneva. The syllabus covered subjects of international financial

and monetary relations. In 1994, he participated in a research internship in the USA on the issues of organizing, financing and supporting the free initiative of SMEs.

Between 1965-1990, he went through all the stages of didactic activity: assistant lecturer, lecturer, senior lecturer, professor. In 1990, he was awarded the right to be a PhD coordinator in the field of *International financial and monetary relations.*

Throughout his didactic activity, he delivered lectures and seminars in domains such as: *Company Finance; The Financial Management of Companies; International Financial and Monetary Relations; General Finance; Currencies; Value Economics; Introduction to Economic Scientific Research; Economic Projects; Financial Management.*

Between 1990 and 1991, he was Head of the Department for Economic Reform of the Government of Romania. It was in this position that he supervised the implementation of the first economic and financial – monetary laws on the market. Between 1991 and 1994, he worked in the Republic of Moldova. There, he founded the first economic higher education institution, The Academy of Economic Studies of Moldova, whose Rector he was for three years. During this period of time, he was also a Counsellor of the Government of Moldova on issues concerning the economic, financial and monetary reform. He supported the elaboration of important economic, financial and monetary laws, as well as the implementation of Moldova's own currency – *the Moldovan leu.*

Throughout his professional activity, he was directly and actively involved in the economic, financial and monetary activity, by participating in administration boards, by obtaining research contracts and specialized assistance contracts, by organizing postgraduate courses, conferences, debates on the issue of economic reform and by setting up centers to support free initiative (in the Republic of Moldova).

Professor Paul Bran was simultaneously involved in educational, administrative and scientific activities. His scientific activity focused on writing university textbooks and other didactic materials, editing scientific books, publishing articles and studies, elaborating and coordinating economic reform programs.

The Bran Passage

Individually or in cooperation with other authors, he wrote university textbooks for the following subjects: *Company finance* (1980, 1985, 1994, 1995 issues), at the Editura Didactică şi Pedagogică, Bucharest and the Logos Publishing House in Chisinau; *International Financial and Monetary Relations* (1980, 1990, 1995, 1996 issues) at the

Editura Didactică şi Pedagogică, Bucharest, Editura Economică, Bucharest, and the Logos Publishing House in Chişinău; *Introduction to Economic Scientific Research (*1985).

At the core of his scientific activity, a fundamental part was played by a new theory on value. Several versions of the result were published (Value Economics, Value Fascination, Value Economy). They all generate a new way of analyzing value, the mechanism of obtaining and managing value, as well as the entire edifice of organizing economic activity at micro- and macroeconomic level. Starting from this foundation, the author built a theoretical model appropriate for the information society that humankind is currently headed for.

In his scientific research in the economic domain, he tackled financial and monetary issues; both theoretical and practical topical aspects were analyzed. The results were published in a series of papers: *The Financial Decision in the Economic Unit* (Editura Ştiinţifică şi Enciclopedică, Bucharest, 1980); *The Present Monetary Mechanism* (Editura Ştiinţifică şi Enciclopedică, Bucharest, 1984, and Editura Ştiinţa, Chişinău, 1991); *Value Economics* (Editura Enciclopedică, Bucharest, 1992, Editura Economică, Bucharest, 1995), and also the Romanian and Russian versions published in Chişinău in 1992 – 1993; *The Financial and Banking Relations of Companies* (Editura Tribuna Economică, Bucharest, 1994); *Company Finance (*Editura Economică, Bucharest, 1999); *International Financial and Monetary Relations (*Editura Economică, Bucharest, 1999) (in cooperation with Ionela Costică); *Value Economics (*Editura ASE, Bucharest, 2002); *Company Finance (*Editura Economică, Bucharest, 2003); *The Economics of International Financial and Monetary Activity (*Editura Economică, Bucharest, 2003); *Financial Communication (*Editura ASE, Bucharest, 2003).

Relying on his activity of research in economic life, on having directly taken part in coordinating reform, he wrote and published over 150 articles and studies in specialized journals in Romania, Moldova, and the Russian Federation.

While working as Counsellor to the Prime Minister in charge of the economic reform problems in Romania (1990-1991) and Moldova (1991-1993), he drew up *Economic Reform Operative Programs.* These enabled the initiation of economic reorganization in various domains: legislation, the formation of new or restructured economic units (companies), the banking system, insurances, finance, the Financial Guard, etc.

One of Professor Bran's outstanding achievements is the Program for Introducing the National Currency in the Republic of Moldova. He had an essential contribution to its theoretical and practical foundation, to providing the logistics and specialized assistance, starting from raising the problem of the country's own currency up to the effective implementation of the Moldovan leu.

As far as the Program for Setting up the Academy of Economic Studies in the Republic of Moldova is concerned, he introduced new methods and principles of organizing didactic activity, structures appropriate for a market-oriented economy and for advanced economic science, and education plans which are both modern, and in harmony with the needs of the Moldovan economy.

He wrote studies on the evolution of the economic reform, the situation of the national currency, the financial management of companies, Romania and Moldova's international financial and monetary relations.

In the administrative domain, he ensured a high quality, appropriate equipment for didactic services, by making a priority of the activity of the library, the informatics and foreign language laboratories and the editing of didactic materials. He supported school reform in the Republic of Moldova, by drafting an economic development program for economic education of all levels.

At the Congress of the General Association of Romanian Economists in 2001, as a sign of gratitude for his contribution to developing and modernizing the economy, he was elected President of this prestigious professional organization.

Professor Paul Bran was elected Rector of the Bucharest Academy of Economic Studies in 1996. While holding this position of huge responsibility, he made it his purpose that economic education reform should progress in all directions: in terms of organization, content, equipment and human resources. Fully convinced of the importance of international cooperation with a view to modernizing Romanian higher education, he promoted the expansion of AES relations with higher education institutions abroad. These achievements led to his re-election as Rector of the main economic higher education institution in Romania in 2000, a fact which gave him the time he needed to complete his didactic and administrative projects, by 2004.

Professor Paul Bran's activity as Rector and the promotion of his managerial programs in the two terms of office (1996-2004) coincided with a stage in which economic university education had to adapt to the challenges of the new Romanian society, in the context of EU accession. By means of his managerial programs, Professor Paul Bran led the way to a new architecture of Romanian higher education, where past tradition becomes intertwined with present achievements and with a future-oriented approach.

When few people dared, he had the courage to draw up innovative projects that tens of generations of students in economics will benefit from; he strongly believed that, in order to respond to the demands of society, education has to reform itself and adapt on the way.

I met Professor Paul Bran when I was a student, between 1967 and 1972. However, I knew him better when, as Rector of the Academy of Economic Studies in Moldova, he came to the Department of Economic Informatics in order to establish connections between the specialists of the two universities and to ask for didactic and scientific materials for his Moldavian colleagues.

When he became Rector of the Bucharest Academy of Economic Studies in 1996, he appointed me Director of the Department of Economic Research and Director of the Calculation Center of the same institution (what was left of it). It was during that time that we brought scientific research back to our university; we basically started from zero, implementing what was really meant by modern economic research. I felt the confidence that Professor Bran had in me, especially since the domain was new to the Academy Senate.

Also, at the same time other projects started: modernizing the libraries, implementing IT systems for all activities, developing the laboratories, providing staff rooms and offices with computers, creating the AES computer network, implementing the distance learning syllabuses, etc.

I worked more closely with Professor Bran between 2000 and 2004, when we worked together in the AES Senate; he was Rector and I was Vice-Rector. That was the time of major constructions in AES, of accessing World Bank funds, of the CNCSIS system being acknowledged in the domain of scientific research, of consolidating the system of transferrable credits, etc.

Ever since 1996, when he was elected Rector, he was determined to take our University to the modern era. Professor Paul Bran was an innovator; he established a balance between the education and acquisition processes. The education plans were revised, a larger amount of time was allocated to individual study, a progressive grading system was implemented, elective and optional subject were introduced, etc.

He introduced distance learning in the Academy of Economic Studies and he created the national network for this type of education. During his terms of office, AES was acknowledged as having the best distance learning system in the country. He created territorial centers, provided them with state-of-the-art equipment and he took the "university movement" mechanism in the country to perfection.

I was mostly impressed by his interest in the domain of informatics (by formation, I am an IT specialist). He launched and enhanced the most courageous projects aiming at implementing an IT approach to education and administration in AES. He provided computers for all departments (secretarial offices, departments, teaching staff rooms, offices etc.).

He extended the computer network throughout the university, he implemented IT management tools by means of the two important systems: that of student administration and of accounting records. He created the "virtual campus" and the first AES high quality site. He opened many rooms, so students can surf the net, he encouraged important IT partnerships, such as those with Oracle, Microsoft, IBM, HP, Omnilogic, Ciel etc. He balanced the expenses on equipment and software acquisition. A license was purchased for the software products used in the University, primarily for those involved in the education process.

The Victor Slăvescu reading room, hosting the internet service

He created the AES television channel, associating it with the Bucharest channel Universitaria, in a consortium, together with the Bucharest Polytechnics University, the Bucharest Building Engineering University, the Ion Mincu Architecture Institute and other universities.

He modernized the AES publishing and printing houses. In 2002, the University participated in the Gaudeamus book fair in Bucharest for the first time, where it was awarded the prize "Educația" (*Education*). Since then, every year, AES has participated in several educational and book fairs within the Gaudeamus Caravan, which took place in other towns, and also in the Gaudeamus International Fair in Bucharest, being awarded numerous prizes.

He restructured the institutional organization, creating new departments such as: Distance Education, Permanent Training, Virtual Campus, Marketing and Professional Orientation etc.

He built several objectives, at a time when other universities could not afford to pay the salaries of the teaching staff.

The first modernization of the Palace in the Roman Square took place between 1996 and 2004, when Rector Paul Bran, with the support of finances from the National Bank, refurbished the Aula Magna and the Rector's Office, introduced a new concept of organizing the library – with book shelf access – and allocated a reading room to each faculty. All of these, and many others, were accomplished when "0 thousand lei[(1)]" were earmarked from the Ministry in charge.

The Aula, after having been restored in 2002

The most important works accomplished during his terms of office were: modernizing the Aula; modernizing the libraries; allocating half of the space in the Victor Slăvescu room to a network of Internet connected computers; designing reading rooms in each faculty; opening the Teaching Staff Club under the Aula, etc. Between 1996-1997, the passageway was constructed between the Roman Square building and the one in the Dacia Boulevard (between the Ion. N. Angelescu and the M. Eminescu buildings). The students called it the Bran passage(2). Also, an education building and the E Students Hostel were erected in the Mihail Moxa street, as well as the C1 Belvedere Students' Hostel. Education spaces were established in Buzău, Giurgiu, Piatra Neamț, Deva, Covasna etc.

In my opinion, as far as foundations go, he can only be compared to Nicolae N. Angelescu and Ion Răducanu, the rectors during whose mandate the whole Roman Square complex was built.

We strongly believe that Professor Paul Bran had extraordinary qualities; he knew that, in order to succeed, he had to invest in people and equipment and he did that; he was entirely open to completing projects (if you had an idea and arguments to support it, he immediately became a supporter of its application); he promoted team work, while he himself worked as much as an entire team altogether; his management style was relaxed, while humor was his strongest weapon.

It is with great pleasure that I remember the sound of carols, the image of the tall Christmas tree in the Aula Magna hall, the beauty of the painted eggs, lovingly placed on his desk; all of these proved his kindness, his love for people and for God.

We shall never be able to do for Professor Bran as much as he has done for us…

Bucharest, 10 December 2010

Notes

(1) Rector Paul Bran always laughed at this phrasing in the institutional contract with the Ministry in charge.

(2) On the 26th of July 2006, while going through the passage, Professor Bran collapsed and died.

I WAS HAPPY TO BE CLOSE TO A REALLY IMPORTANT MAN

Grigore BELOSTECINIC
Academy of Economic
Studies of Moldova

This anniversary Medallion is dedicated to the 70's year of birth of Paul Bran, creative personality, the founder of the Academy of Economic Studies of Moldova. Professor Paul Bran had the most difficult task: to establish the Academy of Economic Studies of Moldova and contribute to economic reforms in our country.

Showing a fighting spirit and desire of winning, it was not easy for Paul Bran to impose both didactic and scientific activities as well as in management one.

Endowed with a brilliant intellect and a great ease to communicate, having an impeccable intuition, Paul Bran was a good observer with a great capacity to analyze and synthesize, hardworking and perseverant.

Having clear mind, he always managed to capture the essence and to adopt the best solutions. He understood very quickly, no matter what issue it was, after which issues was able to give the most relevant judgments as a real specialist in the field.

During his career he was esteemed and appreciated by successive generations of students and teachers. His lectures exceeded a certain style of conduct, because the specific information to each lecture was consistently accompanied by examples from personal experience and ideas. Communications he had besides his teaching activities were also always deep, high content, and captivate.

He could express himself fluently, concise and logically, and always raising very actual topics.

There are very few personalities in the field of economy like Paul Bran who could be defined so diverse. The results of his concerns remain actual nowadays as well. Thus, the scientific papers published and research topics include theoretical and practical aspects of these *new national mechanisms and international monetary, financial decision-making foundation at the micro level, the new theory of value, the mechanism of production and management, as well as the entire edifice of organization of economic activity at the micro and macro.* On this basis one can construct an appropriate theoretical model as informational society, to which mankind is currently headed.

Professor Paul Bran activated very generously in the Republic of Moldova. He had considerable contributions to formatting and training specialists for the national economy. He found young passionate specialists in scientific research. Under his leadership, as a scientific leader, he had 16 specialists thesis.

The founder of the Academy of Economic Studies of Moldova, the first rector of our institution, the Professor Paul Bran will remain forever in the history of AESM.

I was happy to be close to a really important man...

IN MEMORIAM
PAUL BRAN

Nicolae DARDAC
Bucharest Academy of Economic Studies

I met Professor Paul Bran, for the first time, more than 45 years ago. It was the summer of 1965, in Şerban Vodă. While I was finishing the first year, Professor Bran's class was completing its license studies at the faculty of Finance, marking the event with a festive meeting. At that ceremony a few students from the first year were invited. Absolutely by chance I talked to Professor Paul Bran and found that we both graduated the same high school, "Mircea cel Bătrân" in Constanța, that we were from the same stomping grounds.

Four years later, after graduating the academic studies, I was assigned as assistant professor in the department of Finance. Here I met once again Professor Bran and we became colleagues, and later collaborators. We wrote and published together, me being strongly impressed by his unique and unmistakable style of addressing phenomena specific to the financial-monetary field.

I started to know him better, however, during his two terms as Rector of the Bucharest Academy of Economic Studies. It was the spring of 1996. I still very clearly remember the first days of his term. At that time, Prime Minister of the Romanian Government was my college classmate, Nicolae Văcăroiu. Professor Paul Bran's reaction came immediately. Call the Prime Minister, but from the point of view of your former colleague and not as vice-president of our university and ask him to grant us a meeting. That and nothing more. Within days, the Prime Minister received us at the Victoria Palace. I said to him, then, Mr. Prime Minister come and see how the school where you learned looks like, how the classrooms, library and the Aula Magna look like. What can I do? How can I help? the Prime Minister replied. With sponsorships, Professor Paul Bran responded promptly. With sponsorships from the National Bank and from banks. Exactly one week later I was back at the Government where National Bank Governor, the Finance Minister and the chairmen of the six state-owned banks were present. The sponsorship had come. That was the beginning. It was ground zero for our university deep reconstruction. What followed, we all know. Today, after more than 15 years, due to this start, later continued by Professor Paul Bran in his second term and then by the current rector, Professor Ion Gh. Roşca, we are the awe of those who cross our threshold. They envy us, but in an admirative way.

I myself admiratively envied Professor Paul Bran for his native intelligence, for his bright mind, for his fanatical love for school, for his curiosity regarding the latest scientific research, for his responsiveness, for the promptness of his solutions finding and major decision taking, for the fate of our university, for all he did and for the legacy he left us.

The name of the Ancient Greece commander, Themistocles, comes now in my mind, who, when asked by a few close friends what does he think about the brilliant victory of General Miltiades after the terrible battle of Marathon, answered them dry and concise "Miltiades's laurels won't let me sleep". He envied him, but admiratively. Maybe there are some, I'd like to believe only a few, who refused Professor Paul Bran Miltiades's laurels and misunderstood Themistocles's generosity and noblesse. They also envied Professor Paul Bran, but not admiratively. This is a quite different envy. It's the one that proclaims "to die the neighbour's goat" or much better "to die the neighbour and get his goat", which seems to be our national habit.

I strongly believe that Professor Bran's life was blessed by God. It endowed him with many qualities. He was a gifted, charismatic and beloved Professor. He was a school creator and an excellent manager. But, above all, he was a great PERSON. And for really great

persons, value doesn't wait the passing of the years. The words "man blesses the place" or "rank is the inscription on the coin, and the gold is the man" fully fit Professor Paul Bran.

Like us all, Professor Paul Bran faced many difficulties, was put to many tests, but each time he managed to surpass them with elegance and measure. I find in the life and work of Professor Paul Bran the apostolic model. He was equally soldier and general of Romanian School of Economics. His courage was contagious.

For me, no dogma, no excess can be associated with his name. He "sinned" only through hard work and loyalty to the Romanian School of Economics, to the institution he so long served. Professor Paul Bran's personality took shape and was completely consecrated by his decisive contribution to the reform of higher economic education in Romania and, implicitly, in our university, restoring, through everything he undertook, especially in the mandated eight years as Rector, its former glory and prestige. Content profound changes that marked the higher economic education in our country, and not only, heavily bear Paul Bran's signature, the mark of his great decisions he succeeded to advance. All this meant sacrifice, renunciation, selflessness and excellent managing qualities. However, nothing was easy, but each time he had the power and strength to move forward. He had the courage to change the reality. If many of us were like Professor Bran, I think we could progress to a better world, we could overcome cleavages and change our mentality. He stood for the development of respect for truth, the scientific integrity and discernment in delimitating the actual values from the false ones, the truth from illusion and imposture, the scientific conclusions from easier propaganda, the civic courage from cheap demagogy.

For what he did, Professor Paul Bran can be conjugated with eternal time. He earned that right that only great men can accomplish. He never looked to the future with fear or distrust, because he respected and appreciated the present, proved by the fact he had the awareness of eternity.

Those who closely knew him cannot thank him enough for the bestowed time. We understood that his time is eternity. Witness stays, among other things, his books. They continue to talk now when that who wrote them ceased to do so. It is the sacred privilege of those endowed with the power and ability to put thoughts and ideas into printed words to be heard forever. The books that he left us give today interviews instead of Professor Bran. They respond argumentatively, scientifically and clearly. As usual.

Certainly today in the classrooms other voices are talking about the theory and fascination of value, following, I dare to think, with modesty and respect, roads before them started and enhanced. Tomorrow, other minds will develop concepts specific to the financial-monetary field. But what these minds are not allowed to forget, ignore or deny is specifically the story responsibly crafted long before them by Professor Paul Bran.

He would have had, still, more, much more to say, in this world, but time did not have patience. He departed from us too soon, but left the Romanian School of Economics a work and an attitude that will never be forgotten by those who knew him, by those who, just like me, cherished and envied him admiringly.

For all these reasons, and for many others, I believe that the name of Professor Bran, now, when he is no longer among us, should be said with due respect, in silence and with meekness.

STAN with BRAN

Ion STANCU
Bucharest Academy of Economic Studies

I am a privileged of this memorable and unique moment by the fact that I would say I am the student, the assistant, and the one who was promoted by the professor Paul Bran to the Department of Finance.

The year 1973, the faculty graduation was a separation between those with good records from the party and those who had other cases, and as a result I was assigned to the bank, but I had always the professor Paul Bran as model, a teacher for higher education and I insisted to return to the Academy of Economic Studies. Professor Paul Bran, and professor Glăja, head of Department of Finance, have offered me the possibility to become professor in the Academy of Economic Studies. Those two professors I owe my professional career at the Academy of Economic Studies.

It was a special model by his intelligence, by which he promote modernism in those days. Many of us we remember the exquisite sense of humor of Professor Bran during difficult situations, but also in times of great joy. He was with me for professional projects, book publishing projects in finance. Faculty of Finance keeps further the model and format of the course “Foreign relations” that professor Paul Bran wrote and thought it.

I was always with him therefore our colleagues started to address us with the following words “look at the Bran and Stan or Bran with Stan”.

He explains the economic and financial phenomenon by models from scientific fields as physics, computer science, chemistry, information science, philosophy. I was very motivated by the support of analog modeling, graphics presentation to make those very suggestive. I tell that those where highly suggestive because the paper that is called “The Economic and Financial Mechanism” was promoted intensively for a better understanding, an approach as possible in those days for the economy and finances.

He is also the promoter of bringing the representation of video, computer, computers in classrooms and seminars into the Academy of Economic Studies which mandates the continued course of rector Ion Gh. Rosca. It is a beautiful heritage that boasts the Academy of Economic Studies.

If we return to the spirit of humor that he had it, let's imagine that I was in a critical analysis of the party room with the party secretary and because the critical analysis was “deep and long”, not finished, the Professor Bran looks at the clock and, as the party secretary observed, is apostrophize, but finds humor to say, "Excuse me comrade secretary, I gave 2000 lei for this Swiss watch and look at it as a value that I wear it”.

Passing over times in the '89, again make an effort of imagination, filled Hall for awarding Doctor Honoris Causa degree for the Romanian President, Ion Iliescu. The President stood at the presidium and his cap falls into the latter and Professor Bran reminded him that the ASE budget is with zero thousand lei for investment and for that reason could not have a large cap.

Professor Paul Bran is the founder of the Academy in a general sense, in the broadest sense of the term: Academy of Economic Studies, Academy of Economic Studies of Moldova in particular. I want to remember when he was elected rector. That period marked the opening stage of the Academy of Economic Studies, was the stage of modernization when the Academy of Economic Studies began to represent a prestigious university, and his example was continually enriched.

We hope, as the beneficiaries of this opening, that we have faith even today that Professor Bran up there will be happy with what we managed to do by extending its activities to modernize our university. We ensure that we continue to make the Academy of Economic Studies, a very good reference with national and international reputation.

PROFESSOR PAUL BRAN - FOUNDER OF SCIENCE, SPECIALIST TRAINER, MANAGER OF INNOVATION AND MODERNIZATION OF HIGHER EDUCATION

Tatiana MOŞTEANU
Bucharest Academy of Economic Studies

On Friday, December 10, 2010, at 9.30 am, in room 3MIII, there were presented the papers for the International Conference on "MONETARY AND FINANCIAL STABILITY IN EMERGING COUNTRIES", dedicated to the memory of Professor Paul Bran.

During the Conference, speeches were addressed by those who worked with Professor Paul Bran, who knew him and appreciated his personality and valuable contributions to improve economics and finance science for the benefit of higher economic education and of all concerned.

The gratitude and praise to the great personality formed and manifested through Bucharest Academy of Economic Studies, faculty of Finance, Insurance, Banking and Stock Exchange, Money and Finance departments are occasioned by the 70 years he would have been in September 2010.

Professor Paul Bran was devoted to the teaching career and to scientific research, and promoted the performance obtained by research staff, reflected in the learning process, but also in disseminating research results through the PhD programme or other organized forms, including highly rated publications. Bran Paul was himself a scientific authority, polarizing PhD students, young teachers, and close collaborators in the areas he coordinated.

The work of Professor Paul Bran consists of books of high value recognized in the world of domestic and foreign experts. His most famous books are: "Finanțele întreprinderii", "Economica valorii", "Gestiunea financiară a întreprinderii", "Managementul prin valoare".

Rector of the Bucharest Academy of Economic Studies, between 1996-2000 and 2000-2004, he dedicated himself to universities performance management. He was the initiator of modernizing the equipment, infrastructure and logistics in the areas of education and administration of our institution. To him we owe the construction of the new Moxa building, where, since 2004, faculty of Finance, Insurance, Banking and Stock Exchange and faculty of Agricultural and Environmental Economics have their headquarters. Today, this building carries his name, and at its entry there is the bust of the Professor, creation of sculptor Hojbotă Bogdan. This work of art was possible with the financial support of the National Bank of Romania.

Acknowledged in the countless coordinates of economists' activities management, Professor Paul Bran showed additional attachment and effort to the economists' community, being the president of the General Association of Economists from Romania (GAER), during 2001-2006.

Attached to the name of Professor Paul Bran we find important economic and financial reforms in the post-1990 Romania. He worked in the departmental structure of Petre Roman Government. He was the founder of Romanian Commercial Bank, together with former President Ion Ghica and vice-president Ion Nițu.

We are proud that the name of Professor Paul Bran is linked to the establishment of Chişinău University of Economics, where he served as Rector during 1991-1994.

I would like to mention some of the merits of Professor Paul Bran for the Bucharest Academy of Economic Studies:

- the beginning of the modernizing process of Bucharest Academy of Economic Studies infrastructure;
- initiating the establishment of distance learning system in Bucharest and territorial centres;

- library, university textbooks and teaching methods modernization;
- establishment of laboratories for simulating financial and banking activities from the real economy;
- reconsidering the admission process for Bucharest Academy of Economic Studies;
- new approaches to concepts, phenomena and processes in his books which define his personality and scientific work: “Economica Valorii”, “Managementul prin valoare”;
- contributions to economic reforms; higher economic education reform.

We bring to the general public attention the acknowledgement of scientific professional value of Professor Paul Bran, who remains a model, from the past, worthy of respect and worthy to look up to for those who today are the future.

PROFESSOR PAUL BRAN - PERSONALITY OF THE ROMANIAN ECONOMIC SCIENCE

Gheorghe ZAMAN
Associated member of the Romanian Academy

Unveiling the bust of Professor Paul Bran, at the Bucharest Academy of Economic Studies, was not only an opportunity to evoke the scientific personality of the great teacher, but also an eternal symbol of gratitude for many generations of students and PhDs candidates modelled by him, for his colleagues from the university he served with total dedication, as a teacher and rector with bright and witty scientific and managerial performances in the institution history.

Professor Bran was also, for a period of time, Chair of the General Association of Economists from Romania (GAER), where he consistently promoted the methodological, theoretical, practical and applied values of the economist profession, complexly perceived, through its social mission, based on performance and service to the national economic interests, on the elaborated understanding phenomena of globalization and increasing interdependence between national economies, based on knowledge and information and communications technology.

Professor Bran left us a work of high scientific value, whose significance, leading-edge, and contribution remain, to be extendedly learned and unfolded, the responsibility of the Romanian contemporary history of economic thought.

From the multitude of theoretical and methodological subjects of Professor Bran's numerous works, we mention the special importance of the value's concepts, models and quantitative-qualitative approaches, in the context of economic and financial systems, at micro, macro and international level. In this context, a particular significance and economic incentives in terms of current and future research have the scientific contributions of Professor Bran regarding the value's typology, its training and validation processes, the way in which the value can be put in the service of economic efficiency, social-economic fairness and justice, to respect and comply with the "win-win" principle for all players.

Moreover, Professor Bran had considerable contributions in terms of higher economic education modernizing methods, economic and financial policies establishment for tertiary education institutions performance, e-learning system implementation in universities, and extension of the higher education social role.

On this commemorative occasion, the General Association of Economists from Romania expresses its admiration, appreciation and gratitude for Professor Paul Bran's tireless effort and scientific work, which remain a living example of professional competence and erudition, passion and scientific objectivity, continuous respect for the code of ethics of the economist profession.

The great scientific personality of Professor Bran will always remain a bright landmark in our memory, his colleagues' and students'.

Bucharest
December 10, 2010

PAUL BRAN: THE PROFESSOR, COLLEAGUE, AND MAN. IN MEMORIAM

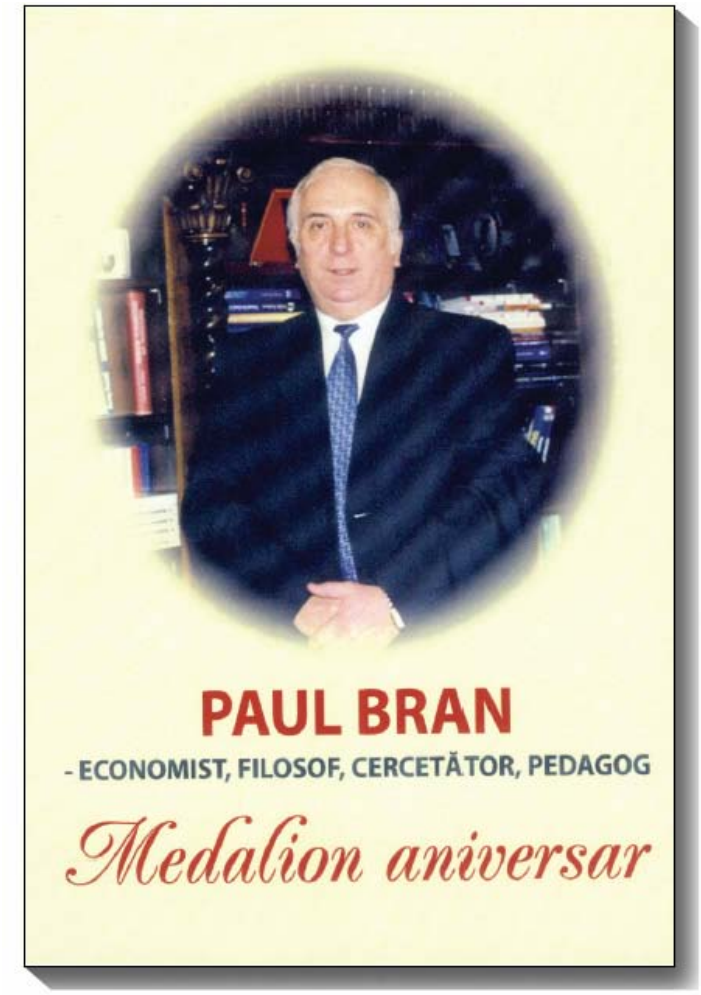
Gabriela ANGHELACHE
Bucharest Academy of Economic Studies

In this lecture hall, in this commemorative meeting, we can feel the spirit of Professor Paul Bran among us. We are still waiting for him to walk to the chair, with a smile on his face and to begin his lecture, making a joke or using an elliptic, but meaningful phrase.
His modesty, his attitude above reproach, his correctness and intellectual sobriety were appreciated by generations of students, who were taught to love and respect the profession of economist.
Professor Bran detested approximation and half measures. Only the truth was important for him in this world lacking true values.
Those who had the chance to meet Professor Bran know how dedicated he was to his students and to the prestigious economic school that he served for more than four decades.
Those who heard his lectures remember the art he was using to present, dissect, examine and comprehend the financial-monetary phenomenon. As his student, I can remember how, at the end of his lectures, the flame or at least a spark of knowledge was wakening, due to the analogies he was drawing between physics phenomena and the financial-monetary phenomenon. He was even placing the monetary-exchange rate phenomenon in a cybernetic model.
Professor Bran's chair colleagues surely remember and cherish his valuable contribution in elaborating teaching materials, the pro-active learning method he was employing and the constant support and guidance he was offering to the young teaching assistants.
And above all, we should pay homage to the MAN Bran, the man who offered everything to the Academy of Economic Studies, the man who was present in his Rectorate office every day before 7 o'clock in the morning and the man who cared about everybody's joys and sorrows.

He will always have a special place in our hearts.
May God rest his soul in peace!

MAN - PROFESSOR
PAUL BRAN

Constantin POPESCU
Bucharest Academy of Economic Studies



Bran Paul, born on September 13 1940 in the village Topolog, Tulcea County, died on 26 July 2006, Bucharest.
He graduated from the Finance-Credit the Academy of Economic Studies, Bucharest (1960-1965).
Specialization at the Institute of International Studies, Geneva, Switzerland (1975).
Ph.D. in Economics, The Academy of Economic Studies from Bucharest, 1975.
Courses: Finances of the company, international monetary and financial relations, economy value.
Fields of scientific activity: money, finance, value theory, economic reform.

Other activities:

- Government advisor in Romania and in the Republic of Moldavia 1990-1991, 1991-1994 respectively.
- Adviser to the Government on issues of economic reform and introduction of the national currency.
- Participation in the establishment of the Academy of Economic Studies of Moldavia.
- Rector of the Academy of Economic Studies of Moldavia: 1991-1994.
- He completed The Memorandum of Agreement with the the World Bank for Reconstruction and Development to receive The World Bank Depository Library status for ASEM Library (May 19, 1993).
- President A.G.E.R. (General Association of the Economists from Romania).
- Rector of the Bucharest Academy of Economic Studies, 1996-2004.

In front of my past there is also the man-Professor Paul Bran, who I "grew up" within the science of economy, I worked in the large team of the family of the Academy of Economic Studies Bucharest, I lived and worked under the inevitable circumstances related to suffering and guilt, to the injustice of people, to the shortcomings of age.

We are honored to be part of the same team with you, man-teacher Paul Bran, we are honored to wear in our beings the energy of your spirit which you gave to the economic education on the meaning of life and for lifetime, in the name of the human intelligence self governance, of the search for happiness in the highest skies of the wellbeing of the Romanian people as "a fully integrated whole" in this part of our common micro-cosmos.

It is worthy being mentioned now, when we honor life, activity and love that accompanied his transition in the micro-cosmos of our common existence, that man-professor Paul Bran put the prints of his spirituality on the quality of a well done thing from the courses that he held, to the PhD students who he guided, from the management of the two twin

organizations – from Bucharest and Chisinau – to "the lion" of the identity reborn in Moldavia, from the Economy of value to the Value of education in a world dominated by pathologic individualism, by greed and by the interests of the strong ones.

Please, learn from me, dear man-professor, Paul Bran, that the Anniversary Medallion brought to life by your true friends is a sign that our scientific life along Prut has in its conscience the value of treasuring what is strong and healthy, to fulfill our spiritual being through education and faith, through love and knowledge, through human solidarity and social community, by the responsibility of assuming the freedom "to be" fully integrated, whose mother is our ancestral Earth and the father is The Sun that warms us with the energy that it generates so that we can survive and fulfill our life in as many as possible human skies.

The change that the man-professor Paul Bran brought Here and There, There and Here is a meaningful transformation, an expression of the will of meaning which, unlike the will of pleasure and strength, so "advanced" in our dehumanized and de-spiritualized world has its roots in The Nature and Society in Him, in what he inherited from the ones that gave him life, in the energy of his family`s nest which he treasures and honors forever, in the love from the people who think that the change in good always begins with you, this love comes from the inside to the outside, being the true living of paradigms through which we understand and relate to the world in which we coexist and succeed as living generations.

In this gracing moment of the man-professor Paul Bran I am honored to be among the ones who consider that Romania`s future is formed of its people of high moral, who put the education and knowledge, the traditions and faith in the job of our meaningful fulfillment, in the big family of loving the nation and the country, the language and culture, the harmony and tolerance, in this space of time which persists through irreversibility.

It would be good as an appreciation taken from the spirituality fountain of the man-professor Paul Bran regarding us, that: "We have the habit of mocking the present, completely denying the past and forgetting about the future", to wake us up from eternity and to make us live wisdom because " only if we become the change we want to happen in our world", then and only then can we be proud of who we are, where we come from and where we go as Romanian human beings who live a unique and irreversible human experience.

It seems like we are forgetting the main idea, which is when we leave this first world we do not take anything with us that represented "to have" and that it is worth to prepare the education of the ones who come to us from an understanding perspective, that what it is really worth for this human segment spent together in every love nest is what we leave after us as living human beings, endowed with the pride of belonging to the family and community in which we grew up, as durable things that form the life of the generations that coexist and inevitably succeed, as the discovery of knowledge and faith that puts the energy inside us in the job of the joy of living in harmony with ourselves, with our nation, with the entire living things .

It produces inside me, maybe more than ever, a lightning of conscience, of beautiful rational hope, that the men-professors from Chisinau and Bucharest are with their mind, heart and soul in the pages of the Anniversary Medallion dedicated to the man-professor Paul Bran, as a sign that something spiritually durable is still inside Us, Here and There, There and Here, which could become the eternity fountain for all the generation which hope to live, work and love in the harmony of the whole living common.

Whenever I met man-professor Paul Bran our souls communicated in knowing how was the family, what were you doing, if we could collaborate in a certain area etc.

I like to remember the meeting we had with the students from the Faculty of General Economy from the Academy of Economic Studies in Bucharest, whose dean of institutional birth was me. After they read the book "The Economy of Value" they insisted on meeting its author, on asking him some things from the book. The debate on the book was amazing.

In my opinion, "interior" is a word which shows that in the case of man-professor Paul Bran things came from the harmony of his homeostasis, ensured by the nature and society

from inside him under the shape of the highest human dialogue between love and scientific knowledge, which added into the meaningful transformation the power of his mind, heart and soul.

The spiritual energies of the man-professor headed towards my joy and honor. Today, my actions regarding the re-spiritualization of the superior economic education have within the greatness, the simplicity and the coexistence of ideas from the Economy of values of the man-professor Paul Bran.

Outside his being, we could conclude that what he left for our accomplishment as people – teachers is a beautiful and fascinating moral model which in its acts of life, work and love demonstrated that we each have the responsibility to put education and knowledge in the job of life and not against it, of life at the level of our full living whole made of people, communities, families, organizations, institutions and natural environment of the common survival.

We afford to conclude that the spirit of the Anniversary Medallion of Here and There, There and Here caught the essence of life and of man-professor Paul Bran under the simplicity of the calling: “the change in good lays within us, it always starts from interior to exterior”.

COMPLEXITY AND PERSONALITY – REALITY AND SOLUTIONS. PHD PROFESSOR DR. PAUL BRAN IN THE ECO-ECONOMIC UNIVERSE

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Abstract. *The reality of the third millennium teaches us the lesson of complexity in which the solutions of the positivist approach based on the arrogance of complete and objective knowledge fail one by one faced with multidimensional crisis. Among the relatively few scientists, but who outstand by the permanence of their work, that dared to escape beyond paradigms and to propose their rethinking for constructing the theoretical basis of the eco-economic universe we find PhD Professor Paul Bran. Perseverance, skill, discipline, optimism, abnegation, creativity were invested by PhD Professor Paul Bran for exploring, correlating, synthesizing, analyzing, evaluating and creating an original model – the entropy value theory – that could substantiate solutions for the dysfunctions resulting from the neglecting of the complex interdependencies in the humans-economy-environment triangle. We evoke an outstanding personality of the economic thought, Professor dr. Paul Bran, on the one hand, for bringing in relief his remarkable scientific contribution, and, on the other hand, for highlighting the key role of the encyclopedic knowledge and exceptional moral verticality association in the building of a paradigm that is adapted to the complexity of the contemporary transformation of the social-ecological systems.*

Keywords: Prof.univ.dr. Paul Bran; complexity; personality; value; information.

JEL Code: Q56.
REL Code: 15D.

„Knowledge... a life of the spirit,
constant effort of adaptation to the reality,
sometimes painful and difficult effort,
renewed always without rest"
(P. Langevin)

1. A knowledge founder – PhD Professor Paul Bran

Paul Bran's creation is inscribed with specific accents in the science sphere by merging economic principles with philosophy. It could be states that he was and will remain in the memory of genuine economists and not only in theirs as a prominent presence by both the firmness of his positions and the manner of how he outlines his self by past and present orientations.

One could notice in Professor Paul Bran's positive and normative thought for the future an interference of ideas. The scientific spirit is interweaving with the philosophical spirit in approaching the economic problems. These characteristics of his personality made Paul Bran to be not only a warrior in the arena who vehemently fought with any real or

assumed opponent of his positions, but also a very pleasant dialog partner who was not inclined to concessions faced with valueless positions.

Knowledge is an advanced stage of data and information transformation that describe processes and phenomena from reality, and also the state of its components. To obtain them there are needed many transformations, rigorously disciplined by the methodologies developed by sciences that reduce to the minimum subjective, equivocal interpretation, thus securing the validity of concepts, theories, and models as instruments of knowledge. Their potential to put these accomplishments in the service of good is decided in the last stage of transformation, stage in which the unique capacity of thinking nature – human, is intervening.

PhD Professor Paul Bran can be remarked in each of these stages since he respected the wisdom concentrated in rules and norms, but also carefully pursued how the methodological gearing is working for addressing its improvement with the disinterested passion of the dedicated researcher. Nevertheless, PhD Professor Paul Bran's outstanding contribution is brought in the last stage, in which he proved an exceptional ability to set the thinking prism so that the essential becomes visible and could be perceived as such by both the scientific community and practitioners and students. Thus, Paul Bran is enrolled amongst the few who succeed in the rigorous follow up of complex interconnecting mechanisms of processes deployed in knowledge dimensions that separated one from another and easily identify the decision sensitive points then transposing the outcomes of their pursuit in a form that expresses quintessence and help the progress of knowledge.

In scientific plan, PhD Professor Paul Bran's contribution could be organized in more knowledge fields: management of financial phenomenon, value mechanism, information based society, economic education, institutional management if it is to mention only a few. The papers and discourses regarding these subjects are gravitating around the value concept, this being interpreted with skillfulness and surprising naturalness for crystallizing essential elements in the progress of economic and ecological thought.

In the research of financial phenomenon's management PhD Professor dr. Paul Bran developed an original vision on some high interest subjects at micro and macroeconomic level among which financial management of value, projections of financial decisions of consumption and production processes, projection of financial-currency flows, financial management of the enterprise, international financial and currency relations, currency mechanisms are the most remarkable.

His works – *Fascination of value, Economics of value, Management by value* – are shocking through their content, hard to understand for those who do not have the adequate culture, but, meanwhile, very astounding because they compel the reader to reflect, to deepen the connections with other sciences and to seek the counter arguments.

By these papers PhD Professor Paul Bran brought the evidence of his creativity and innovating spirit, but also of an encyclopedic knowledge that allowed him to analyze the economic phenomenon within the restrains imposed by the physical knowledge on the functioning of natural systems. PhD Professor Paul Bran entered with a lot of courage the gates opened up the internationally renowned Romanian economist and mathematician, Nicholas Georgescu-Roegen, for an economic approach of nature and founded a revolutionary theory of value – the entropy value theory. He was impelled to adventure on this difficult road by the numerous "clumsiness" of the economic theory in explaining economic realities and major dysfunctions – unemployment, pollution, ecological, economic, and social disequilibria. He is one of the few economists who approached with passion a knowledge field that was for long time marginalized by the economic theory and continues to remain as such at operational level.

The information based society represented another subject in the research of which PhD Professor Paul Bran channeled the acuteness of his critical analysis succeeding in distinguishing a number of astonishing connections that are very important for decision making. Thus, PhD Professor Paul Bran noted that "We are in the full morning of a new society organization form: the *information society* or *knowledge based society*. Opinions

regarding this stage of development of the society are very different and, sometimes, even divergent. We are encountering nomination for this stage such as *post-capitalist society, post-industrial society, information society, knowledge based society, society based on sustainable development.*" He elegantly inferred the answers and continued the analysis of the mechanism of value creation by focusing on the *precious ore* that will dominate the economic activity – *information.* PhD Professor Paul Bran regarded the information with the economic lens and formulated a number of suggestions on decisions that could value the economic and natural potential. Thus, he stresses the importance of the consumption process, which could act as an value amplifier, but also against value.

Another field where PhD Professor Paul Bran invested beside professionalism and rigor, a lot of soul and love for humans is education. The lectures, tutorials, bachelor, master and PhD papers directed by him are evidence for the talent of an exceptional schoolmaster. Great personalities of the economist profession were formed and developed in the creativity hearth built up by Prof.univ.dr. Paul Bran in the Academy of Economic Studies.

2. Environment and economy – the misleading glamour of „green"

Environment is degrading by a number of more and more intense and complex processes. The climate is changing to the accumulation of carbon dioxide emitted by energy intensive industries. Biodiversity becomes poorer and poorer with the expansion of infrastructure, urban environment, contaminated sites, deforestation, and overexploitation of fish and other populations. Wastes are mounting in the "backyard" of large urban conglomerates and in the rural space of developing countries. Water resources are depleted and jeopardize the survival of millions of people. Invisible, but extremely toxic flows of substances are coming in contact with people, animals, plants and other actors of the "unspeaking" world spreading death and serious illnesses. All these changes became more and more visible to the large public invading their private space through the modern information and communication technologies.

Well before the public noticed the changes, the scientific community became aware about the major conflict between what we call development and what provide our survival and even wellbeing. The signals were transmitted, vehemently enough, with more than four decades ago. In this period one could witness an oscillating evolution with an upward trend, that is an increase of environmental topic in every day life and at decisional level. Thus, we are now accustomed with the landscape of separated containers for recyclable materials, acknowledge more easily the value of exhaustible fossil fuels then we are paying the gas of which price comprises the carbon tax, ecological buildings and thermo insulation of buildings entered the every day language, and the "green" metaphor transmits the same message for a wider and wider public – protect the environment to survive.

The multitude of "green" activities and products that emerge on the field of our and community's perception could justify us to carry further the metaphor – the "spring" came. Thus we are reaching the initial metaphor, "Silent spring", proposed by Rachel Carson in 1968 to suggest the toxic impact of pesticides. If the spring is or not silent we could find out by reflecting on some recent events: the explosion of deep water oil platform in Mexico Gulf and the breakdown of settling dam in Hungary. How "green" were the decisions that have such consequences? The answer is very simple – the ecological criteria did not existed or it had a very low weight. This answer bring us closer to the initial significance of the "spring" and project us in the field of reflections, since changes brought in by four decades of environmental changes are insignificant. Hence, the existing solutions no matter how progressive or elaborated, do not succeed to be on the scale of the challenges.

3. Reductionism and complexity in the confrontation with the ecological crisis

The environmental topic was approached by numerous sciences, initially independently, and then more and more in an inter- and trans-disciplinary context. By all means this triggered many progresses in theoretic and operational plans, but also the

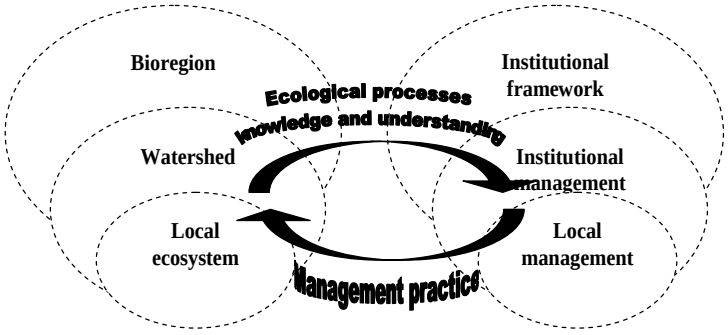
recognition of limits for scientific knowledge. For addressing this researches based on complexity theory intensified.

The traditional scientific paradigm is based on reductionism, that is phenomena, processes, and components are analyzed and reduced to simple elements that will be studies for explaining their changes and the significance of these changes against the whole of which they belong. This approach is dominant and substantiated the modern knowledge of the world. The complexity paradigm was adopted by scientific research because it applies a complementary vision. The complexity science considers that systems are made up by so many parts that they cannot be fully identified and that interact with each other generating nonlinear behaviors. Complexity is a characteristic of systems that does not allow formulating explanations on the basis of knowing the characteristics of the component parts. Interactions among parts and the consequences of these interactions are of the same importance. Hence, the traditional scientific paradigm is not able to provide the information and knowledge needed for understanding the behavior of such systems.

The mind maps that represent the human-nature relationship evolved according to the knowledge available in different moments. Today, this relation is configured by assuming the systems' complexity, one of to widely accepted models being the one proposed by Berkes and Folke (1998): social-ecological system theory and the adaptive cycle.

The social-ecological system theory is based on the assumption that accomplishing the goal of sustainability necessitates understanding how integrated social-ecological systems are working. This model represents human, social, and natural dynamic as a part of an integrated system in which social-ecological interconnections are evident and in which the border between social and natural systems is artificial and arbitrary.

The goal of the model is to understand the source of changes that have the power to transform in adaptive systems. The analysis targets are economic, social, and ecological changes that are deployed with different speed and at different spatial and time scales.



Source: Berkes and Folke (1998).

Figure 1. *Socio-ecological systems*

In Figure 1 there is a visual representation of the socio-ecological system concept. There could be noticed the focus on the role of social learning. The components of the system's hierarchical structure are connected through the knowledge and understanding of ecological processes that are further translated in managerial practice. Meanwhile, there is not excluded the possibility of other change determinants to come into action.

4. The genesis of a basic theory for the understanding of eco-economic universe – entropy value theory

PhD Professor Paul Bran invested a lot of passion in this field of dysfunctions – degradation of the environment – in an attempt to formulate an economic theory that allows to explain the environment-economy interaction in order to provide knowledge useful for decision making. He noticed the necessity of a new value paradigm (Box 1), but also the difficulties to be in adopting it. These difficulties had the effect of an incentive, being far from discouraging in his revolutionary commitment.

Box 1 At the start of a journey …

"The journey toward a new paradigm was started by me before 1989, in moments then, being involved in the measurement or financial repartition of value, I have noticed numerous "clumsiness" of the economic theory of that period in the explanation of the economic reality, but also of the major dysfunctions (unemployment, pollution, economic and social unbalances) that occurred in both our society (where we used the *work based value theory*) and those where the utility based value theory (marginal value) was used."

Bran, P. (2010), *Managementul prin valoare*, Editura Universitară Publishing, Bucharest, p. 24.

PhD Professor Paul Bran made the first step in outlining the new economic value theory by establishing the physical support of value. In this respect, he stresses that "humans individualization within Nature brought nothing else than the winner's solitude. We noticed, once again, that the most dangerous things are … victories! And the victory against Nature, thoroughly prepared by the economic theory too, is not an exception. The shallow adaptation of the theory to the more and more obvious anomalies of the economic realities helps neither the theory, neither the practice that uses it. It is imposed an «in depth entrance» in order to reinterpret the value obtaining phenomenon according to Nature sciences laws and exigencies, by making the *Economic of value*, a merger between the *economics* and the *physics* of value."

Using with legerity one of the most powerful communication tools – metaphor, PhD Professor Paul Bran enterprises a trip in the "scientific knowledge mountain" for a reformulation of value's definition. Thus, in his vision the definition relation takes the shape of equality between inputs in economic processes and outcomes (results) of these processes:

$$c + s + [\, Pna + Pba + Psa + \ldots Pea] = c + s + p'' + \overset{+}{E}d$$

where:

- c + s represents the economic potential attracted in the enterprise's structure (preserved here after a previous consumption process);
- the big bracket […] reproduces the direct inputs in economic processes (without going through the firm's capital) and the free natural (Pna), biological (Pba), social (Psa), and sometimes economic (Pea) potential;
- c + s + p″ represent the useful outcomes that are the physical support for value. Profit (p'') uptakes the influences from all the processes involved in value obtaining and management;
- $\overset{+}{E}d$ represents the non-useful outcomes for the economic systems as waste with high entropy.

Departing from this definition relation, the main paradigm changes are as follows:

- Inputs in economic processes are completed with the contribution of systems and processes that are beyond the economic influence;
- The outcomes are at a level allowed not only by production process (WVT) or consumption (UVT), but also by all processes from the widened mechanism of value obtaining and management;
- In the outcomes structure there are highlighted also the outputs as waste or non-useful outcomes for the value producing economic system;
- In these conditions, the definition relation of entropy value respects the general laws of Nature (matters transformation and preservation law, entropy law).

Thus, in the entropy value theory economic processes are assimilated with general processes that take place in nature, being forced to *respect the general laws of Nature and to assimilate the newest results of scientific research in all fields.*

The conceptual changes regarding economic activity are as follows:

- widening the economic activity concept in order to comprise, with equal rights, both production and consumption and liquidation processes;

- the economic activity cannot be separated from natural processes that take place in environment and also from processes that take place in society;
- the economic activity is a manifestation guided by the genetic information comprised in the eco-field formed by both the force lines of natural and social life laws and the internal forces of the system in the stages of production, consumption, and liquidation.

For the statement of the general principles of entropy value theory, PhD Professor Paul Bran notices the complex pattern of human existence and explain in a suggestive manner the implications of this pattern for knowledge. Thus, it is considered that in case of complex systems "we will abandon repetition and universality, for accepting *specific* and *unique*, *feel strongly the environmental conditions*, *vibrate at the cross-roads*, *respect the time arrow* in all transformations, we will *communicate*."

It is important to be noticed that although he proposes a revolutionary change in the economic thought, PhD Professor Paul Bran respect previous accumulations and constructively uses the paradigms of work-value theory and utility-value theory.

The difficult journey of rebuilding value ends with the formulation of entropy value theory, according to which economic processes (*production, consumption, repartition, exchangce*), and also processes that are specific to human society and environmental restoration are deployed within the limits of the attracted-transformer-preserved economic potential through the whole chain of real production-consumption-production processes. The general model of the entropy value theory is verified against the evolution of the society, solving environmental problems, and information society. Solutions that are surprising by their elegance and rational for the major problems of the high level policy agenda are described and tested in works dedicated to this knowledge field.

PhD Professor Paul Bran is confident in the possibilities to be opened up by the adaptation of the entropy value theory. Thus he considers that "the entropy value law will not forget us ever if we will not start urgently to feed the natural environment from inside and outside of the enterprise. We will have to use a part of the available economic potential for reducing pollution, for abating what we damaged in the years of industrial outrage (for reaching and exceeding capitalism), years of potential robbery and ecological crime. Preserving the economic potential in "Nature's wounds" is an investment with multiplying effects in the nearby future."

5. Knowledge, moral verticality, love – premises for sustainable solutions

We are tempted to put the Paul Bran schoolmaster along with the great philosophers who defined the field of knowledge in economics, nature, physics, geo-ecology etc. The progressive orientation of PhD Professor Paul Bran's personality is given by the opening for the assimilation of new in the economic science through the adoption and interpretation of certain notions linked with the action of entropy law, demonstrating the need of paradigm change in value dimensioning.

PhD Professor Paul Bran's personality is already highlighted in the first years of his profession by his manners and deep thinking. Paul Bran contributes to the implementation of innovating ideas in the elaboration of some strategies which proved to viable for the economic reforms in Romania and Moldovan Republic.

The scientific contribution on the field of knowledge in the economic dimension is a vector for those who has to deepen the analysis of notions to become personalities prepared with a solid economic and financial thinking, but also on the applicative field it will outline the building up of theoretical and practical knowledge in the financial and banking system, economic-ecologic of which we need not only now during the crisis, but also on a indeterminate period, founding a solid instruction of the future economist, practitioner.

The financial thinking, the complex economic thinking is made by up taking theoretical and practical information from those involved, outline and foreseen a correct management not only of the old, but also of the new for building real awareness which

confirms thinking and action. If by any course we do not manage to implement and recommend handbooks, books, treaties and we go along only with ours, we are preventing ourselves and preventing others from the real continuity of information, from the heritage of the past, from the scientific contribution that is forgotten and unused, being found easily a new direction which abandons the milestones of national economic thinking and respects the internationalized values.

Really how are we thinking to reform the new economy, the new economic and financial dimension if we do not manage past, present, and future information according to the contribution of those who know and knew better what is happening in Romania? In the management of national resources the economist has to have a special role, to know his or her limits, the value and to act on time for preventing and mitigating the effects of some global crises. PhD Professor Paul Bran stressed that the future generations will ask us "What have you done to save what is still to be saved?" We could add, thinking tomorrow, within the context of sustainable development, that the future generations will ask about our responsibilities: where are Romania's potential resources of the soil and of the underground? How were we involved and applied a healthy economic and financial mechanism?... Forests are gone, waters are already not clear, the resources' potential fell… Guilty in all of these are people, who within the era of the global society forget the national, the economic potential and the importance of the value concept in the economist profession. Are they economist used to re-launch economy?

PhD Professor Paul Bran faced all these challenges with three powerful weapons: knowledge, moral verticality, and love. His encyclopedic knowledge yielded a solid foundation for change toward less "clumsiness" of the economic theory by introducing a new value paradigm – the entropy value. By the moral verticality he managed to avoid the misleading glamour of modernity and globalization, putting instead of them lasting values such as patriotism, vigilance, rationality. Last, but not least we could state that all its work is an expression of a highly asymmetric position in which he is animated by the will to give out all the results of his restless struggle for the well being of all of us, without being concerned about his gains or losses. Such position could be understand only by going in the realm of sensibility and love, where no obstacle is difficult enough, no crisis is deep enough, and no man is bad enough to not be changed for a better world.

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SOME REFLECTIONS ON THE PROFESSOR PAUL BRAN BOOK - "MANAGEMENT BY VALUE"

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Called since the tumultuous early of his life, "a man of great projects," Professor Paul Bran is (because we cannot say "was") a leading figure in education and economic research, a man of great sensitivity. Professor Paul Bran was the founding rector of the Academy of Economic Studies of Moldova (ASEM) in Chisinau, during 1991-1994, and rector-reformer of Bucharest Academy of Economic Studies (ASE) during the period 1996-2004.

Modern school creator and excellent manager, professor Paul Bran had revolutionized, with his strong personality, to whom nothing seemed untenable, economically Romanian higher education based on the qualities mentioned. He had courage, imagination and power to build in a period of time when few dared to believe that something is possible. Buildings – literally, but especially figuratively – high on his dreams and innovative projects in which he teach it's to successive generations of Romanian economists, carry themselves, giving strength and wisdom that he has built, with the wings of his soul with joy and generosity of the gift of faith, commitment and boundless passion towards economics Romanian.

Now, after fewer years, we affirm, with Bogdan Draghici, that he had "an exceptional destiny, ending paranormal"[(1)]: now better understand the signs – premature end of Professor Paul Bran was unthinkable in spring 2006, which was in full force and creative power. During ASE festivity was launched "Paul Bran Rector 1996-2004" with the coordination of Professor Ioan Rosca rector. Professor Bran was present at that book launch. The book was designed as a tribute to former rector Paul Bran, whose mandate in the ASE was marked by the biggest success of this prestigious Romanian university: education and facilities built or upgraded homes, laboratories and libraries inaugurated widespread computerization, exceptional academic performance of a university with international fame, all the achievements of reform rector Paul Bran. This was the work of Professor Paul Bran factual. What is shocking now is the fact that the cover of this book, printed only a few months before the tragedy during the admission, contain the image of the bridge, the terminal end of a process exception, where the great destiny of the ROMANIAN Paul Bran returned last tab. In the image appears not only bridge, a tunnel of glass, partly cloudy on one side, suggesting the way to a better world safe for Professor Paul Bran.

But, to analyze also his ideation work. In his unique paper in the literature of economics, breaking their secular patterns, because this concept does not exist in normal language of economics, Professor Paul Bran has conceptualized the first thought in "Economic value"[(2)] in which he addressed, in strictly personal, innovative and creative, the economic phenomenon of value.

In everyday life, the concept of "value" has the sense of things ownership, facts, ideas, events, to meet the social needs, and ideals generated by them and the price is the sum of the qualities that make an object, a being or a phenomenon. In the area of economics, the definition of value is not very different from that used in everyday life. He was concerned to define "value", this phenomenon that had existed since antiquity, and was initiated on some of the greatest philosophers: Aristotle, Xenophon, and Plato. Since that time there were two main directions emerged the definition of value: "value" = "utility" and "value" = "work." These statements were the result of the axiomatic research on human activity, conducted in economic processes as production, distribution, exchange and consumption. The existence of these axioms was due to two different modality of investigation and ranking of the business process analysis. The first case ("value" = "work") has dominated the production process and the role of producer. The second case ("value" = "utility") had priority to the consumer and

the consumer role. Regardless of the value proposition for the definition adopted, one thing is clear: the value is the result of the changes occurring in the economic processes in which human activity is involved. These processes are: production, distribution, exchange and consumption.

The economic process is a dynamic state within a system fueled by internal or external forces. Output in the visible area of these processes is carried out in the form of events that you receive with our senses. Human action in the economy is associated with human activity systems classified in the family, enterprise, national economy, global economy, the economy of the Outer. All these systems include the living human system. They are fueled by internal or external forces, the above-mentioned business processes. These processes are outwardly in the perceptible area through our senses based on events such as economic, social and biological, physical or chemical. All these events are incorporated into economic phenomenon. Economic value studies the phenomenon of economic value.

Over millennia of human civilization, economics has focused on explaining economic events, as well as the synthesis of models and intervention tools to change the economic phenomenon in accordance with our value judgments. The professor Bran draws a parallel with physics, showing that the economy is explained and summarized by the events of the intervention methods, just as physicists have explained the phenomena of magnetism, optical phenomena, but technologies have emerged, and use the knowledge in practice. Physics investigates the support of all natural phenomena – material, only clarifying the category of matters, explanations of natural phenomena have become credible and technologies were adequate and effective.

Despite the diversity of the definitions and theories of economics accumulated for over 2000 years, the basic paradigms of economic theory have remained until today in the two axioms. As long as the paradigm of science is checked by the reality, it is useful and necessary to explain the phenomenon that continues the fundamental research. In contrast, when the paradigm allows amplification of the real anomalies, the education that is made in the meaning of unconditionally immutable paradigms became a brake in the progress.

The basic paradigm of economics, on the concept of value, respects the law of the interaction between theory and reality, the dominant role being dynamic and economic reality. Scientific and technical knowledge brought in the explaining mechanism of the concept “value”, tools and resources with favorable effects, but also major failures. All these changes – yet maintains the essential work of building the theoretical work of Professor Paul Bran – today require a new way of economic processes, as well as a new paradigm of value.

The old paradigms are considered immutable rooted in the mind of most theorists and practitioners which apply that theory in practice. The Immutable paradigm must be replaced at some point, although it is widely applied and interpreted, is present in schools and universities textbooks, and these changes require an intellectual effort and great material. Thus, economic activity had a beginning represented by the time when development conditions have forced the man to move from collecting food, its production. This approach enabled the discovery of historic moments for the development of business and understands the system at the micro or macro, local, regional, continental or global scale. The complex character of the phenomenon of economic activity produced during the historical development should appeal to new concepts, forms and methods of evaluation and management of value. The cybernetic model type, for example, stresses Professor Paul Bran, the results are based on inputs, but also the quality of the structure transformation and the time factor.

These ideas, very simple but very great in their simplicity, which successive generations of economists have used to make up their economic systems, especially in the last three centuries, are taken over and continued in his last, published posthumously, Professor Paul Bran – “Management by value.”. Here's what he testified, referring to this situation, even Professor Paul Bran: “The road to a new paradigm we began before 1989, in the moments that I'm dealing with the measurement or the value of financial breakdown, we have seen many

awkward science economic time, in explaining economic reality and the great failures (unemployment, pollution, economic and social imbalances), which were developed in society, both in November (where I used based on labor value theory) and in countries which used the value based on utility theory (marginal value). The impulse to form this unrest came after a meeting with the philosopher Noica. Why after a meeting with a philosophic predestined? – Asking rhetorically and we are trying to understand today. Because value is a paradigm shift from the philosophy and this is notable, also, incidentally. As there is no chance that the 26 key scientific papers – just so – in all fields of reality study (not only economic) that were studied by the Professor Paul Bran to explain what "management by value" is noteworthy that, in these works, only three are written by Romanians: N. Georgescu-Roegen (1979), D.G. Margineanu (1992) and I. Mihuț (1989).

"The basic paradigm of economics concerns - reminds us the professor – the contents of value." Given today's controversial developments of the economic phenomena, in the twenty-first century, it feels more than ever the need of a new paradigm of value that Professor Paul Bran expressed simply by the axiom "value" = "work" = "utility" "=" KNOWLEDGE", pointing out that" business is the engine that goes before the entire structure of society. But it can also lead back.... " (Bran, 2009, pp. 23-25).

Early in his paper, "Management by value", Professor Paul Bran proposes – having here, to our knowledge, a pioneering contribution in the history of economic thought – to "recognize our contribution to the economic and value of the outstanding results in the physical sciences, chemistry, mathematics" (Bran, 2009, p. 28) known as natural sciences and exceptional results in the field of philosophy, considered the queen of sciences. Among other substantive thesis, analyzed by the professor in the paper already mentioned, and that is one that "value is based on low entropy, using the concept of entropy (low)" (Bran, 2009, p. 6) released by N. Georgescu-Roegen; hence the value theory of Professor Paul Bran is based on low entropy (TVEJ). Like the work of Georgescu-Roegen, which is great exegete, Paul Bran adopted the method of a complex plan to present his ideas throughout this paper: the most significant theoretical ideas, accompanied by commenting personalized, innovative and original them.

In his book "Management by value", as in all his works, Professor Paul Bran manages an extraordinary synthesis of the current information, adopt a modern way of writing – anywhere you open the book you can read it and fully understood it –, the methodology developed in his works demonstrates originality and scientific precision. Thus, Professor Paul Bran makes an irrefutable proof of "value" as a creator of economic school – the school of values in the knowledge society. Therefore, the professor Paul Bran is a theoretical economist, Romanian and foreign, the most representative of our time in the value domain.

Notes

(1) Bogadan Drăghici, *An exceptional destiny with a paranormal ending*, the Bucharest Journal, weeks 2 to 8 October 2006, http://www.gazetadebucuresti.ro/fullnews.php?ID=1663, visited on 2 December 2010.

(2) A similar work, for a border economic science, had been designed by Professor Paul Bran with Ionela Costica, The Economic of the financial and international monetary activities, collection of „financial-monetary Library", Bucharest, Editura Economică, 2003, p. 566.

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PAUL BRAN – A MAN AMONG MEN

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I have never imagined how difficult it would be to write down some of the thoughts that overwhelm me at the memory of the one who was PAUL BRAN! I bear in my soul a huge void caused by his absence from the university, scientific and social life, which I will never fill, no matter how hard I may try. The life of professor Paul Bran ended unjustly early on this earth, but his image remained still alive and, out there in the eternity, I feel that he is watching over all those who knew him and were next to him in everything he has done. An old Romanian proverb says that a man who never planted a tree in his life or who has never built a house lived for nothing! Paul Bran built a real school, which is much more than a building. He built in Republic of Moldavia a higher education institution, he constructed new buildings and student houses at ASE Bucharest, he established a school in the economic field, particularly in the financial one, through the knowledge transmitted to his bachelor and doctoral students, through his economic work and through his proven clairvoyance in the field of university management. Benjamin Disraeli (English politician) said: ”If you do something, you will not always be happy, but you will never be happy without doing something”. Paraphrasing him, it is hard to say if Paul Bran left us being happy, as his death was so unexpected that it surprised him during a period of full creativity and work strength, a whirlpool which occupied his whole time and life! I find it very difficult to imagine how his life would have been outside of school. I cannot forget that he was only one step away from being nominated Vice-Minister of Education and all those who envied his achievements combined their strengths and managed to cancel the event. Here is a proof of his performance through the envy of the weak! There will always be a person throwing a stone at a fertile tree! And Paul Bran had his share of such ”benevolent” persons even among those who benefited from his achievements. His fight towards them consisted of doing more and better! In other words: ”Forgive them, God, as they do not know what they are doing!”, seemed to say Paul Bran.

Paul Bran loved his people and felt intensely their joys and sorrows. He was then and there where he could do the most for our brothers across the Prut who were the victims of the roulette of interest games of the great powers. The grief of separation from our brothers was felt by all of us in the country, but historical ”reasons” condemned us to silence!

Paul Bran joined the efforts of those who had the courage to establish a higher education institution on the lands of Satu Mare, encouraging and supporting them with everything that he was able to. He had the knowledge of the science of the beginnings and the desire to give the chance to education to as many young people as possible. That is why he established the distance learning program in ASE and encouraged the expansion of the post-university educational studies offer.

The presence of Paul Bran in any group of people was marked by his optimistic spirit, always ready to transform an inadequacy or a lack of success into a joke. I remember with amusement of a situation at a celebration, where the country’s president at the time, dressed in robe and with a cap on his head, dropped his cap while walking towards the microphone, because the cap was too small. The incident was saved by Paul Bran through a phrase that relaxed the atmosphere: ”Mr. President, your cap is as small as ASE’s budget!”.

Paul Bran loved young people and children. He always had for them something that stimulated them towards performance.

Paul Bran was an economist concerned with the fate of his country and the fates of the economists, being the President of the General Association of Economists in Romania. He frequently suggested to those who negotiated the conditions of adherence to the European

Union to ask for a market segment for our economy, because we were joining „the table" among the last and the best "seats" were already taken.

Paul Bran was knocking on the gates of the Romanian Academy after the success obtained for his paper "The Economics of value" and his entire economic work. He had a reserved place that only his devoted descendants will be able to transform into a post-mortem reality.

Professor Paul Bran created a "bridge" between our souls, of those who populate the banks of Prut, and his spirit will always accompany us in everything we will do, in the continuation of the projects he started under the desire of unity in space and time.

PAUL BRAN

VASILE ŞOIMARU
Academy of Economic Studies of Moldova

Paul Bran – a Romanian economist, professor, manager of high education in the field, double PhD – in geography and economics, Professor at the Academy of Economic Studies of Bucharest.

Paul Bran was born on the13th of September 1940 in the village Topolog, Tulcea. He studies at the Lyceum "Mircea cel Bătrân" in Constanța (1955-1959), he took a license degree of merit at the Department of Finance and Credit of the Academy of Economic Studies (1960-1965). He had advanced work on probation of documentation at the Institute of Advanced International Economic Studies in Geneva, Switzerland (1975) and US (1994).

In 1965 he is assigned at the Department of Finance at the profile Faculty of the Academy of Economic Studies of Bucharest, covering all levels of competition based on learning: tutor, assistant lecturer. In 1974 he becomes PhD in Economics defending a thesis for a Doctor's Degree with the subject "Financial decision in economic unit". He is promoted as an assistant professor (1979), then a professor (1990). Since 1990 he has been a leader of doctorate at the specialty "Financial and Monetary International Relations", and has prepared several doctors in the field, including the studious youth specialists from Moldavia.

He held various important positions on the professional line: founder and rector of the Academy of Economic Studies of Moldavia (1991-1994), rector of the Academy of Economic Studies (Bucharest) (two consecutive terms, 1996-2004), Chairman of the GAER – General Association of Economists from Romania (since 2001). As rector of the Academy of Economic Studies he contributed to educational programs in connection with European standards, modernization of the didactic base, equipping of the institution with computers and other modern tools necessary for studies and research. As President of GAER he has made option to increase the role of economists to the achievement of the national economy, the affirmation of respect for the economy and to national interests, framing the Romanian economy in the current economic processes of the world. He has filled important administrative positions: Government advisor/Head of the Department of economic reform in the first democratic Government of Romania (1990-1991), Government advisor in the Government of the Republic of Moldavia (1991-1994). Having professional training and great prestige, he was fully in the process of reformation of economic higher education in Romania and Republic of Moldavia, but also to restore the national economy during the transition to a market economy.

Paul Bran has focused on several academic disciplines: Finance of enterprises, Financial management of businesses, General finance, Money, Economic value, International monetary and financial relations, Financial management, economic projects, and introduction in the economic scientific research.

He successfully joined work in the research and the department, the latter focusing on two main areas: a) writing/development of textbooks, courses and other theoretical and methodological work aimed at supporting the university, this work being particularly popular with students and b) approach to actual problems of science and economic practices, both in printed works and in communications at symposia, congresses, conferences.

The main areas of scientific research which showed Paul Bran are the following: monetary (monograph "Current monetary mechanism", Bucharest, 1984, Chişinău, 1991), finance (Financial decision and economic unit, 1980) theory of value, including the foundation of a new theory of value called entropy theory of value (Economic value monographic studies, several editions in Bucharest and Chişinău, between 1991 and 2003, in Russian appeared in Chişinău; fascination value, 1992), economic reform – the first

foundation program of operations of the Government Reform Petre Roman (1991) and the Government's reform program in the Republic of Moldavia Valeriu Muravschi, including a privatization program of the national economy. So, Paul Bran has outstanding achievements in launching and sound development of economy of transition, particularly in Romania. He was the initiator, the author and/or co-author, leader of major programs: The research of terminology of specialized vocabulary in Finance, Study on the model of development and cooperation in European region (Case Study - Giurgiu European region), Consortium for development and rural extension, etc.

He wrote and published over 10 academic courses, 15 monographs and studies, many of them have had several editions. In recent years he has edited works of synthesis, some revised and completed updated: *Economics of the value* (2002, 2003), *Finance of the enterprise. Management of micro financial phenomenon (2003), Financial Communication (2003), International financial and monetary Economic activity (2003), Monetary Economics (2003)* etc. He is the author of over 150 studies and published articles in Journals in Romania and abroad (*Economic Truth, Economica, Economist, Relationships, Economic Tribune etc.*).

A special page in the biography of Paul Bran, professor, scientist, manager and Man is his special relationship with Moldavia. In 1990 he was invited for the first time in Chişinău by the Government of Mircea Druc, with lectures and consultations referring to transitional economy. In 1991 he was invited back to Chisinau, by the Government Valeriu Muravschi and as a government advisor, contributing to draw the first steps of economic reform in our country. In September 1991 he is nominated Rector of the Academy of Economic Studies of Moldavia (ASEM) – the first institution of higher education in economic profile. As a member of the ad hoc team named by Prime Minister Valeriu Muravschi, Paul Bran had a direct contribution to the introduction of the national currency "leu" in Republic of Moldavia. He has organized the reference to economic and postgraduate studies of young Moldovans in Romania (in particular, at Bucharest Academy of Economic Studies).

However, the name of Paul Bran is identified in consciousness of many Moldovans (September 1991) with the founding and consolidation of AESM, which actually came to be, undeniably, the most famous Romanian economist in the Republic of Moldavia (Dumitru Moldovanu), noting a separate page in the history of higher economic education of our country. Together with the team, Paul Bran obtained and adapted to educational process a few impressive blocks, which he had equipped with computers, laboratories, etc. He founded a very rich specialized library, bringing from Bucharest around 50,000 volumes. According to the European standards he organized the new educational and research process, focusing on teaching, editing courses, textbooks, monographs, and so on in Romanian. In short time, the Academy of Economic Studies of Moldavia has become a prestigious educational institution, a forging of well-trained personnel for the national economy. But in 1994, the leadership of Moldova forcing him to leave the Republic of Moldavia, in spite of this hostile attitude, justified by anything, Paul Bran continued to remain a faithful friend of Bessarabia, which can be confirmed by hundreds of students and doctoral students who have had the opportunity to study at the Academy of Economic Studies, under his leadership, but also by his interest in business processes, financial and Monetary Affairs of the Republic of Moldavia, which he referred on several occasions.

Paul Bran's scientific activity was assessed with the Romanian Academy Prize for the monograph *Economics of the value* (1995).

Professor Paul Bran, erudite and charismatic teacher, much appreciated by students and teachers that guided, with tact and warmth, will remain in our souls and hearts of those who knew him.

PROFESSOR OF VOCATION
PAUL BRAN

Sabina FUNAR
Romanian Court of Accounts

The prestige of a higher education institution depends on the quality of its teachers and graduates. An outstanding contribution to the prestige of the Bucharest Academy of Economic Studies had Professor Paul Bran, who was elected Rector for two consecutive terms, during 1996-2004.

I had the chance to meet and know the distinguished Professor Paul Bran in Chişinău, "the capital of the Eastern Romania", the Republic of Moldavia, during 1991-1992, when together with the Union "Romanian Hearth" gave books to the libraries and schools, then in 1993-1994, when my husband, at his first mandate as mayor in the heart of Transylvania - Cluj-Napoca, was invited by the Romanian great patriot, Nicolae Costin (the mayor of the second Romanian town after Bucharest), to participate to the major national holidays. It was then that I visited, for the first time, the Academy of Economic Studies of Moldavia (ASEM), a modern university campus. We were warmly greeted by the ASEM founding Rector, Professor Paul Bran, and by the "Rector of the place", Associate Professor PhD, Vasile Şoimaru, between the two existing an obvious friendship and a very good collaboration. It was then that I met a very active president of the ASEM, with a great sense of humour, who did many great things for the country and for the Romanian people. The founder of the Economics School of Republic of Moldavia impressed me with his special personality, his obvious qualities as an outstanding manager, his attitude of sacrifice, but most of all with his patriotism. After separation from the Soviet Union, Republic of Moldavia needed an academic institution on economics, to promote the national interest and get closer to the European Union. Professor Paul Bran made history and proved with facts, both in Chişinău and Bucharest, that the brothers will be brothers forever. After having visited ASEM, the Rector Bran Paul invited us to the river Dniester, in the Dubăsari area, to reach the eastern boundary of Greater Romania, where he told us many things about the Moldovan history since 1989. I realized once again that the wheel of history in turning. After the Great Union from Alba Iulia on December 1, 1918, a few of the great Romanian teachers from Chişinău and Cernăuți came to heart of Transylvania, to help set up the University Dacia Superior, and other major Romanian patriots arrived at Bucharest, at the great universities and at the helm of the Romanian Academy. Now the wheel of history has led an eminent teacher of vocation, Professor Paul Bran, from Bucharest to Chişinău, to build a bridge (ASEM) over the Prut, in order to shape future experts in the financial-banking and international economic relations fields.

Home again, my husband learned that after the presidential and parliamentary elections in the autumn of 1992, Professor Paul Bran was one of those nominated as Prime Minister of Romania. Another economist was elected, one with an extensive practical experience, and consequently, Professor Paul Bran managed to continue and carry out his innovative projects for the higher economic education. Teacher of vocation, Paul Bran succeeded remarkably, through consistent measures and actions, to set on the right track a series of ongoing initiatives and settled an effective training process of future economists. He made the Bucharest Academy of Economic Studies to become not only a prestigious institution, highly trusted, but also a partner for performance.

It's so "nowadays" Professor Paul Bran's emphasis from his work, "Economica Valorii" (eng. "Economic value"): "if on the Government working table, besides the Constitution, there isn't also the Economics, the society train will use steam more for the siren than for going towards a reasonable future". Professor Paul Bran participated directly after 1989 to the synthesis of the reform programs implemented in Romania and Moldavia, and

found out that “eco-field matrix was not favourable to radical economic reform”. Starting from the great philosopher Constantin Noica, who sustained that “From speculation to speculation is only a step!”, Professor Paul Bran made a bold demonstration in the book “Economica valorii”. The former Rector of Chişinău and Bucharest Academy of Economic Studies showed that the value theory, applied in the former socialist countries, is fundamentally discredited, and the marginal value theory, applied in many capitalist countries, has some anomalies regarding economics concepts, and scientific tools. In this valuable book, Professor Paul Bran noted that “economic reform must necessarily have a scientific foundation”. Furthermore, the founder of the Romanian economic school concluded that: “the Romanian nation, productive when properly managed, when its minimum social needs are fulfilled, and when its lands are defended, needs an eco-field specific to an economy based on market laws and with normal social and ecological characteristics”.

Evoking the memory of the teacher by vocation, Paul Bran, we have to emphasize his involvement in saving Roşia Montană. It remained in actuality the exploitation with cyanide by some foreign adventurers of the largest deposit of gold, silver, uranium and rare metals from Europe, the one from Roşia Montană, recently being evaluated by Oxford economists at over a hundred billion euro. Rector Paul Bran of the Bucharest Academy of Economic Studies, together with the Romanian Academy, Romanian Orthodox Church, Alburnus Maior Society and dozens of nongovernmental organizations, plus over eight hundred historians and archaeologists around the world have resisted the sacrifice of this huge wealth left to the Romanian people by God in Eden-like Dacia and to the creation of the largest environmental disaster in Europe through the use of cyanide. The fight for saving this deposit and for environmental protection is today continued by the Bucharest Academy of Economic Studies, headed by the its Rector, distinguished university Professor PhD, Ion Gheorghe Roşca, and this fight was hand over from Professor Paul Bran to his distinguished wife, Professor PhD, Mrs. Florina Bran.

In the period he was Rector of the Bucharest Academy of Economic Studies, I rejoined with the scholar Paul Bran and I was glad to find out he was appreciated and valued in the two Universities of Economics, by the students and the General Association of Economists from Romania, but also by the Central Bank. I had the chance and the great honour to have Professor Paul Bran in the committee awarding me the title of university professor. I owe him greatly for the honour he granted me.

A great PERSON, PATRIOT and TEACHER, Professor PAUL BRAN left this world too soon. For those who knew him, teachers and students, the memory of Professor Paul Bran will never be forgotten.

The bust of Professor Paul Bran unveiled today stands as proof for the veneration of his merits and memory.

Bucharest, December 10, 2010

PAUL HASN'T GONE….

Constantin ANGHELACHE
"Artifex" University of Bucharest

Today we are at a commemorative scientific symposium, marked by the remembrance of he who was, is, and will be PAUL BRAN. Economist of wide comprehension, founder of economic higher education on both shores of Prut, polisher of specialists for the national economy, illustrious author of works of high scientific attire, manager for us all and not least man of rare nobleness … Concisely, that's how we would describe the "kind personality" of professor, rector or colleague PAUL BRAN.

He was always where situation demanded, not as "assistant", but as decision-maker. The regretted professor N.N. Constantinescu left to him the leadership of the General Association of Romanian Economists, position in which he did a lot of good for the community of economists. It is hard to decide in which Professor Paul Bran excelled, but, by synthesizing, we shall agree that he was good in all those he involved into or was required to involve by life or profession. From "him" always a smile, a counsel or a good thought passes through. That's the way he was and will remain, for those who knew him. He wanted and succeeded to shorten the path between the buildings of the Academy, by bringing into being the "Bran Pass". Maybe the destiny followed him and he ended at the middle of the project he founded. Herodotus said "great things are usually made with great risks". And Paul Bran dared each time to assume the risk, boldly carried out great works that will last and keep him among us. Paul Bran founds an easy framing into what George Chapman said "are truly great those who are truly good". He was good with everyone, and, even if he was sometimes envied, he perfectly framed into Eschil's sayings, that „he who is not envied means he is not great".

So he was and will appear in the memory of time the figure of Paul Bran who, now from above, urges us to follow his parables and example.

Paul Bran has not gone, but he retired and watches us from above. Let us have in mind the sayings of Claire Martin "nobody is irreplaceable, but, sometimes, there is need for more persons to replace a single one …", to have the stature of the man we commemorate today.

PAUL BRAN – THE WISE, THE INNOVATOR

Valerică OLTEANU
Bucharest Academy of Economic Studies

In our memory, collective or individual, as the time is passing by, there is a process of decantation and sedimentation in which some things, trifling and insignificant, are gradually disappearing, being forgotten, others are increasing in value getting a special significance, becoming landmarks of development, modulation points which have an influence on the subsequent progress.

These last years, within the framework of the difficult process of reorganisation and modernization of the Romanian education in general, and marketing in particular, more than ever, I had to bring into play my memory and ask myself an obsessive question: How would Professor Paul Bran have acted in such a situation? From where and why is there such a question? And why related to Paul Bran and not to other high reputation names that I met for more over than 30 years on the halls of the Academy of Economic Studies?

While I am writing these lines, I haven't got any clear answer yet. It will certainly come, by the time passing by. Anyway, one thing I know for sure up to now. Paul Bran was a frank man in no matter what dialogues he was involved, a man who meditated a lot on what it had been said and he did not give up until he was sure he understood exactly and found the right answer for the discussed topic. Paul Bran was a *wise* man and you could always find to him or with him the right solution for the personal or non-personal problems, with which you were confronted.

There were numerous situations when I met Paul Bran, professor and rector, many of them being included in the category of "unforgettable memories". Among these, the dearest ones are those connected to the foundation of the first Faculty of Marketing from Romania, because this represented the culmination of the marketing development in our country and in the same time making a dream of a whole generation of servants on the marketing "field", come true.

The dream existed since the beginnings of marketing in Romania. Nonetheless, it became reality in the period of time when Paul Bran was rector at the Academy of Economic Studies. Today, what was done then seems lacked of significance. In fact it was a predictive gesture, as it was produced when there were just a few those who understood the level to which marketing development reached worldwide.

In our country, because of the historical background, the organisation of marketing studies was way left behind because of the perpetuation of confusion created in time between the concept of marketing and trade. The confusion was and is still supplied by the existence, in marketing progress, of such a stage, surpassed in the developed countries ever since late 50's of the last century. Even if there was some progress with the setting up of the marketing specialization within the Faculty of Trade, there wasn't any time left. It was time to make an important decision which had to be assumed, in a beautiful way, as we like to say it during the management courses, by a manager with an innovator spirit. And such a manager was the rector Paul Bran who proved to be "the right man in the right place", for so many times.

I remember, as if things were happening today, the calmness, the tact, the diplomacy and elegance in the way he conducted the works of the Senate that was to take an important decision on marketing development in Romania.

Today, the existence of the Faculty of Marketing as part of the Bucharest Academy of Economic Studies has become element of the ordinary as well as many other durable deeds achieved by Professor Paul Bran in the history of Romanian education.

One of my colleagues, with a passionate interest in the history of commerce, was once talking about the existence, in the 30's of the last century, of a promotion course held at the

Academy of High Commercial Studies by Professor Virgil Madgearu. It was then when I realised that our ancestors were profoundly connected to everything in science, the promotion course being nothing else but the predecessor of the later marketing.

In another circumstance, listening to academician Mircea Malița, I was about to find out that during his mandate as a minister there were introduced the management and marketing courses for the first time in Romania. A similar statement was to be made in his speech, on the occasion of his 80th birthday, another rector of The Academy of Economic Studies, Professor Gheorghe Dolgu. So, on this path of great scholars registers the activity of professor and rector Paul Bran who, in the same way as his illustrious precursors, added, with patience, tact and wisdom, a page of history in the evolution of the Academy of Economic Studies.

A NAME FOR ETERNITY
PhD Professor PAUL BRAN (1940-2006)

Gabriel I. NĂSTASE
Christian University "DIMITRIE CANTEMIR"

REMEMBER

I met Professor PhD Paul BRAN before 1990. Not only as he had a university lecturer, but also because of the very interesting discussions that we had on the organization and modernization of production processes. Years have passed! We have reviewed and in other circumstances. The most relevant was when I was a counsellor at the Romanian Presidency. Both knew that it was proposed, along with other two names (one of them being that of Nicolae Vacaroiu), to be Prime Minister. There was not to be! Fate of Professor PhD Paul BRAN was different!

In my mind and soul, Paul BRAN remained one of the most pleasant memories. I was and I was an admirer of the man and Professor PhD Paul BRAN. I sympathized, supported and appreciated for his honest way of being, of behaving with each person I ask for support.

BIOGRAPHICAL REFERENCES

BRAN Paul was born on September 3, 1940 in the village in the Topolog of Tulcea. He attended the High School "Mircea cel Batran" in Constanta (1951-1959) and subsequently those of the Finance-Credit Faculty of the Academy of Economic Studies in Bucharest, during 1960-1965. Following the outstanding results obtained during the student was recruited faculty of the Academy of Economic Studies, Department of Finance.

During 1965-2006 he held, through the competition, all academic career stages.

In 1975 he obtained a PhD in Economics, major in Finance, based on a doctoral thesis entitled: "Financial decision in the economic unit".

That same year he completed a period of documentaries and training in Switzerland, the Institute for Advanced Studies in International Economics in Geneva on issues of international monetary and financial relations.

In 1994 he completed a period of documentaries in the US on issues of organization, funding and support free SME's.

Pofessor Paul BRAN has published numerous specialized works. Romanian Academy has recognized the scientific value of the work of Professor Paul BRAN, prizes Economic Papers value.

During teaching has led seminars and lectured in many different disciplines. The coordination of scientific research of students has resulted in the development of numerous works of degrees.

In the period 1990-1991 led the Design Department of Economic Reform of the Romanian Government.

In 1991 he founded the Academy of Economic Studies of Moldova where he was Rector of setting up in 1994. In the same period (1991-1994) served as economic adviser to the Government.

Between 1996 and 2004 he served as Rector of the Academy of Economic Studies, flourishing as a genuine promoter of modernizing and increasing efficiency prestigious institutions to prepare students according to current labor market demands.

Also, in his capacity as vice-president and then president (elected at the Fourth Congress of AGER, 25 May 2001) of the General Association of Economists in Romania, participated in the community of economists, always identifying the most effective solutions to problems facing the Association.

In 2001, Professor PhD BRAN Paul was awarded the Diploma of Excellence and Silver Medal of the National Bank of Romania. It was the first time that such a distinction was granted a Romanian economist for outstanding contribution to the development of economics and economists from Romania training.

• REGRET

This summary of the professional dimension of personality PhD Professor Paul BRAN does not exclude the emotional aspect, proximity and warmth, which has manifested to his family.

In his rare moments of silence in which he spent with his family, Paul BRAN knew to be a husband, father and grandfather.

Certainly that would be desirable to expand this time to eternity, and for every minute that elapses deeply feel the presence of irreversible so dear wife, his children and grandchildren.

But it was not to be as he wished, because his fate was already designed from heaven to earth by the good God.

And he sacrificed family oasis of calm in return for a hectic life of a ruthless and perverse struggle that gives you an entire battlefield.

All battles are won. He managed to be a formidable fighter. He had few real friends. Instead, he was surrounded by many enemies perfidious, blushed with envy and unable to do something lasting for their peers.

Professor PhD Paul BRAN was aware of what is happening around him. He had a good soul and cared about people and especially students, who, with the grace of the teacher, they shape the hearts and minds to be good not only for economists, but also real people, Romanian love their country, the people and its traditions.

A “bright” light wave has passed, radiating goodness, passion and responsibility, leaving behind pleasant and lasting memories.

In most of its work was an orphan.

His point was family support. His success was due to higher professional and his family, where the atmosphere of serenity, balance and love have been provided with devotion and passion for his wife, Professor PhD Florina BRAN.

In the life of both spouses were also sad moments, ruthless, pitiless that have severely tested. One of those moments was the loss of one of their sons (Iulian Ovidiu), under conditions that leave room for speculation and now, you shudder and revolt at the same time!

This tragic story of BRAN family life was the price courage, patriotism and verticality PhD Professor Paul BRAN, the audacity to bring his light and warmth in the hearts and minds of our brothers over the Prut, where the instigation of our Lord Jesus Christ: “Love your neighbor as yourself”.

Difficult to answer!

The couple Paul and Florina have received from God the power to overcome this tragedy and to go further strengthened and determined to fulfill their divine mission on earth!

Death slain in a moment of weakness due to the ingratitude, the duplicitous behavior of some friends whom he believed and who often helped them selflessly. What you need to know is that people like Paul BRAN never die. Their deeds are those which remain in the

consciousness of generations to come and go as they do sometimes with anger or with sublime delicacy of the sea or ocean waves when you hit the shore.

Years have passed! The heart and soul of both spouses sat forgiveness, but not forgetting those hard times.

Amid this deep and insidious silent sorrows, PhD Professor generous heart Paul BRAN has failed!

Fierce and sudden death to hit the middle passage (bridge) which he built with passion, joining Rectory (now Building Ion N. Angelescu) Trade (Mihai Eminescu building), which once PhD Professor Silviu Negus would designate it, so inspired, Bran path.

Life and soul of this man the book was broken in a strange place in the middle of a corridor of concrete and glass, suspended between heaven and earth, uniting the two buildings did not, but two parallel universes: that of life and death.

He left this world, leaving his body weary, lifeless, into the ”Stargate“ the way to heaven, where they waited for the spirits of those he loved and who loved him also.

Bucharest
10.08.2010

A SPIRU HARET OF OUR TIMES, A PATRIARCH OF THE ECONOMICAL ROMANIAN SCHOOL

Ghenadie CIOBANU
Academy of Economic Studies of Moldova

I am among the lucky ones who have benefited from the first Romanian Government Scholarship which was granted to the Moldavia government in early 1991 for doctoral studies at the Academy of Economic Studies of Bucharest, scholarship brought to Chişinău with the contribution of Professor Paul Bran, in the period when he was adviser of the Prime Minister Petre Roman, that was the director of the first Government Department of reforms after the revolution. He came to Chisinau at the invitation of the Mircea Druc Government as adviser of the prime minister. In the same time, it appeared that idea of establishing the Academy of Economic Studies of Moldavia.

I was very honored to be the first Moldavian PhD Candidate of his, and I have the most beautiful memories, but also a sense of duty to this great Man, teacher, researcher and manager.

The professor Paul Bran was an erudite scholar with a special charisma that has gained the esteem and respect from many generations of students – "from both sides of the Prut". Which he truly loved and who loved him and they respected, that today are grateful to him and will be always. As he said as the 10th anniversary of the Academy of Economic Studies of Moldova, that if a farmer is commemorated by the fruits of his labor as much as the life cycle of an orchard, a teacher will be remembered and will live through his students, will be remembered by generations of students from Romania and Moldavia.

Leading figure of the Romanian higher economic education. Founder of the prestigious economics school in Moldavia – Academy of Economic Studies of Moldavia. A man with big heart, world-class intellectual, one of the most modern and most important Romanian economists. He was and remains a model of manager – Reformer of the superior Economic School of Romania and Moldavia. He was demanding to what is called economic science, he was passionate of what economic education is.

A total teacher model - worthy of admiration and to be followed, the Professor Paul Bran had followed a special methodology for teaching the financial subjects through the mechanism of value, and capitalized it in the books "International monetary and financial relations" and "The finances of the company". His lectures were interesting, charming and quite accessible to every student, even though they were at a high academic level, were not without humor and a fine sense of logic and learning. With nothing compares to the stunning work known throughout the economic school community on the both sides of the Prut, and recognized and practitioners, that must be studied, analyzed and recommended in teaching of economic sciences.

A modern economist for centuries! A special place in his work has the scientific research of the economic field and the studies of the financial-monetary phenomena. The work of the scientist Paul Bran "The monetary mechanism" which appeared in 1984 and was reissued in 1991 in Chişinău, the "Science" Publishing is the result of an original research on changes in the economic theory and practice. A special place in his work has the scientific research of the economic field and the studies of the financial-monetary phenomena. To everyone it is known the paper "The economic of the value" – in which there were set the foundations of a new theory on the value of a new way of looking at value, the mechanism of production and its management and the entire edifice of the organization of economical activity micro and macro level. On this basis it can be built an appropriate theoretical model of information society towards it is currently heading mankind. Therefore, it can and should be made the basis of our national recovery and economic development programs and

strategies. “The economic of the value” is a small encyclopedia of sciences, not merely a classic economics treaty, a theory which opens up new possibilities in researching the economic phenomena, which open wide the possibilities ... in which he uses the methodology of interdisciplinary research in economics. Being a known personality, multilateral developed, with a spirit and encyclopedic knowledge, but also having from nature a rich insight into the observation and correlation of the natural phenomena and correlation with socio-economic and financial-monetary phenomena. It was both a scientific and spiritual treasure, treasure that is reflected in his work that puts a lot of questions on the development of the economic phenomena and their prospects.

As he said, “Where on the work table of the Government, along with the Constitution, is not also the economics, the society trend will consume more on the siren than moving to a reasonable future”. Therefore - the economic reality that we wish to include in the models of a theory changes faster and deeper than we can adapt our production models!

As the author of this paper concludes "... the path increasingly narrow, on the company should go under the burden of economic, environmental, social, political restraints association requires mandatory driving the social car of economic science, economic science which, in turn, is open for scientific research results in all areas of our physical, social and biological existence”.

But only beyond the restricted area of economics, we could find the support for reconsidering the theoretical and practical value model so that it reflects the changing world.

Only by broadening his scientific horizon, the economist may work with other specialists to solve the repairing of the engine of the society, the economical activity.

Only involving in the mechanism to obtain the value the processes of the natural environment and of the society we can give value to all these processes and we can respect the work of all specialists involved in these processes.

In the current conditions of global economic crisis, we have to accept that way of economic thinking that he proposed to find modern solutions of constructing models and decision making under uncertainty, both in economic processes, and in a process of close interaction with the surrounding natural environment and economy.

PROFESSOR PAUL BRAN CONTRIBUTION TO THE DEVELOPMENT OF THE SCIENTIFIC LIBRARY OF THE ACADEMY OF ECONOMIC STUDIES OF MOLDOVA

Silvia GHINCULOV
Director of the Scientific Library of AESM

Paul Bran, eminent personality in economics for the whole Romanian territory, has worked with great passion and dedication to the establishment of the first economic higher education institution – the Academy of Economic Studies of Moldavia, as rector and professor for three years. For many teachers who participated in the founding of the institution, Paul Bran has been a model of high culture, scientist, a model for those trained in Bessarabia economic school.

When we talk about relations between the Academy of Economic Studies of Moldavia and the Academy of Economic Studies of Bucharest, friendship, cooperation, support, and understanding are the words used most frequently. The two institutions are mutually supported all the time during last 19 years, when large changes occurred on international and domestic level. It can be said that these relations of friendship and cooperation are in the hearts of the two teams, having a solid base founded by Paul Bran, which has contributed greatly to the cultivation and development of these institutions.

These excellent relations were not easily obtained; they have been constructed under difficult conditions of transition to new economic relations. We must appreciate them and we have to develop them in the future. We have to prove clear-sightedness and wisdom, to continue our efforts for reinforcement of our ties of friendship and cooperation in all fields.

There are 19 years from the establishment of the Scientific Library of the Academy of Economic Studies of Moldavia. Paul Bran had a special contribution to the development of the AESM, creating a comprehensive collection of documents in economic field and a computerized system of library management. Mr. Paul Bran has always maintained that the information is essential for the development of advanced societies in political, economic, social and spiritual spheres. The exercise of civil rights involves the assumption of greater responsibility and involvement in complex decision-making processes, which is impossible to achieve without a good availability of information. The role of libraries in these conditions changes substantially.

The library collections have always been seen by Paul Bran as “heart of the library” - idea that will survive, for sure, in the future. Expanding collections are always assumed new services, new relations between the user and the library. All books written and brought by Mr. Paul Bran have remained as a heritage of the country and are placed in the information circuit, in the sphere of attention and activity of the beneficiaries, who will never forget dedications written by Paul Bran: “*To my students, on both sides of the Prut”*. These words confirm the viability of the library, emphasizing, however, generous attitude and love for students.

In 1993, at the initiative of Mr. Paul Bran, Memorandum of Agreement with World Bank for Reconstruction and Development was signed; as a result the Scientific Library received the status of AESM “The World Bank Depository Library” in the Republic of Moldavia. In this way the institution was integrated into a comprehensive information system which is a segment that meets the needs of performance required by the market economy.

Mr. Paul Bran’s attitude and responsibility towards the library and its objectives have been taken in the development programs of the Academy of Economic Studies of Moldavia initiated by the following rector – Professor, PhD Hrişcev Eugene (1994-2001) and professor PhD Belostecinic Grigore (2001 – to present). All library achievements are due to people devoted to our institution.

Paul Bran took up valuable contribution in setting up the documentary heritage of the institution, which has generated the idea to give his name *Paul Bran* to the latest reading room in the Scientific Library of AESM. For librarians from AESM, the name Paul Bran symbolizes concrete notions that people can place significance during his life: vocation, morality, professionalism, patriotism. For all these we dedicate, we share ideas, and we are grateful for the gift of the mind and soul which comes with distinction and generosity over the years at the AESM.

PAUL BRAN – AN EXAMPLE OF A DEEPLY INVOLVED INTELLECTUAL

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Paul Bran was not only an outstanding Professor, he was also an example of an actively involved intellectual in the public life. A Renaissance man with the fate of a tragic Greek hero he did not content himself with his own scientific work and university career in a time of profound changes, but also of an exacerbation of discord and degrading public manifestation.

Highly sensitive and with deeply positive feelings towards his fellow men, he did not withdraw in an academic ivory tower in order to avoid an ideological confrontation and accede to a place of maximum visibility, put on the pedestal of public recognition. His only wish was to be a truthful soldier fighting for progress and a better life for the people he belonged to.

Professor Bran had a profound sense of love, respect and devotion to his fellow men. He had a beneficial influence on the professional career and conduct of the people he worked with, inspiring them to become better professionals and human beings. He did not exhibit his own merits ostentatiously and approached his interlocutors with modesty and seriousness regardless of the topic, thus helping them to make the most out of it.

After the 1989 Revolution, Professor Bran continued to carry out research and the didactic activity along with other important duties in the public administration, where he promoted his innovative ideas, shaped and re-shaped institutions and marked the evolution of the Romanian people as a whole.

The challenges offered by the 1989 Revolution turned to be a fertile ground for Professor Bran's vision and the projects unfolded led to the reformation of the Romanian state. Nevertheless, he never claimed to be a reformer. He coordinated the Department for Economic Reform of the Romanian Government, between 1990-1991. He did not manage a large number of people out of a sumptuous office, instead he preferred to get actively involved and coordinate a team of up to ten, delegating them to cooperate in a creative and balanced way with different institutions. Thus the normative acts, which sometimes changed radically the legislative body inherited from the socialist state, were moulded to a great extent in the "laboratory" (think tank) led by Paul Bran.

His personality traits – balance and seriousness – were transferred naturally and directly to the way he analysed and approached the transformations brought about by promoting new regulations.

Professor Bran, an expert in the Romanian economy and the financial mechanisms, did not look for "change for the sake of change" and that is why he fostered only those changes that would strengthen the economic and financial potential of the economic agents and help them adjust and consolidate in a transparent market with free competition.

A deeply moral man he tried to filter everything "qui prodest", becoming the enemy of those, who out of ignorance or other reasons, just wanted to demolish rapidly whatever the cost, without really knowing what to put instead and being aware of the consequences. The Professor was a founder father, who succeeded in a period of unrest to shape human beings and institutions at the same time.

Professor Bran was promoting initative, a framework where individuals can unfold their potential, both in one's own interest and for the wellbeing of the community. He made a concerted effort to draw up a privatization project applicable to the Romanian economy, that would lead to economic growth and welfare. He modified and adjusted the project over and

over again but unfortunately, its final stage can be summed up as ”no one is a prophet in his own country“ a truth he would acknowledge with a sad smile. But he would never give up, behaving like a spoilt child or an academic in an ivory tower, he would just smile and utter some inspiring words of wisdom to his close collaborators and continue to work…

His work also meant a decisive involvement, out of the spotlight, in reasserting the everlasting Romanian ”vein“ in the territory called the Republic of Moldavia, according to the present geopolitical realities. He relied on loyal collaborators, good professionals dedicated to this cause, among whom his wife, Florina Bran, played a leading role. Not far away from the bloody Transnistrian conflict Paul Bran never posed as a hero or patriot, he just laid the foundations in Chişinău as well as in Bucharest. During this period he suffered a devastating blow in his personal life – one of his sons was found dead in dramatic and suspicious circumstances. Like great tragic heroes he was not ”defeated“, he did not yell out in pain or expect compassion. With a deep sorrow in his heart he continued to support his family and work further. And what did he achieve? He contributed to the revival of a historic Romanian region, which was not allowed to act as a political entity but a spiritual one since 1812, in an independent state.

The young state called the Republic of Moldavia had defined its fundamental symbols: the flag, the coat of arms, the currency with a major contribution from this intellectual, deeply marked by the philosophy of values.

Professor Bran believed in human evolution, his hope in the future was contagious for the people around him, though seldom confessed but always leading to action.

The hope in the future and his concern in shaping it urged on him never to give up his profession, which had become a vocation, i.e. the preparation of the young generation for their future profession and life. The teaching profession went hand in hand with setting up the legal and institutional framework, enabling young people from Moldavia to study in Romanian and at the same time to have access to the highest professional standards by modernising and developing libraries, offering teacher training and teacher development, building up long term relationships with prestigious higher education institutions all over the world. These are just a few landmarks in the professor and rector’s career, obvious for everyone who had known him. His main mission was to enhance quality in education, by fostering the modernisation of the educational process by introducing IT systems in order to assist the newest teaching and communication methods. As a result the structure and layout of coursebooks and other didactic materials had to be adjusted, also marked by the innovative spirit of Professor Bran.

In this huge endeavour he was steadily supported by the young generation, who felt empowered and stimulated in being creative. To become one of his collaborators was a natural process based on transparency and fair competition.

Professor Bran was not only a thinker bursting with ideas, that should be put into practice by others. He also had remarkable communication skills and an ability to choose the right people, being involved in designing work procedures, such as the ones that made a dream come true: young Romanians who live abroad would be able to follow certain preparation stages in schools and universities in Romania.

The mentor Paul Bran had a beneficial influence on a lot of people’s careers and he got great satisfaction from their becoming leading professionals in the field of Finance and Banking in both Romania and Moldavia.

Another facet of this founder father was a real drive to refurbish and technically restore the buildings and teaching premises of the Academy of Economic Studies in Bucharest. During his rector mandate the material endowment of ”the old lady“ had tripled and was renewed due to his ability and determination to identify and trigger the necessary financial resources.

Professor Bran was an adept of the reform of the economic higher education system, not only in terms of structure and quality but also in the access to information. Numerous

interviews, press releases and other public events are a testimony. He advocated a free and transparent competition in the selection of potential students, supervising the entrance examination procedures that had to be based on and to harmonize different criteria.

Being aware of the need to train and develop the skills of the technical and administrative staff he improved and implemented the distance learning system, which if assisted by flexible teaching methods and appropriate materials, could reach the level of the full time education system. Thus, the long term effect on people and the economy was remarkable.

Professor Bran did not like to talk about his own merits and although I have presented very succinctly only a few landmarks of his vast activity, with an emphasis on his extra academic activities, I have the feeling that he would have been embarrassed and insisted on what had still to be done.

The ideas and great deeds of Professor Bran have endured and surpassed the physical existence of their promoter. This event acknowledges it. He is still among us and might have just retired to rest peacefully.

HOMAGE TO THE PROFESSOR BRAN PAUL

Ilie VASILE
Bucharest Academy of Economic Studies

I pay my homage and, I think I can say, the one of the generation which I represent, to the one who was and who will always remain in our hearts as professor Bran Paul.

As I said ever since last spring, this year would have been professor Bran Paul's 70th anniversary and perhaps he would have retired. I say perhaps because I know that professor Bran Paul couldn't have stayed too far away from ASE. He dedicated his life, his work power, his passion to this institution. I have been around professor Bran for a long period of time. I first met him during my years in college, when he replaced another professor for a few classes, and I think I was professor Bran Paul's first doctor in economy. He was a remarkable person, with an amazing work power, a man devoted to teaching, to people, to spirituality, who worked with strength and passion for this institution, for the Romanian school system, for those of us who were around him, for a better life.

After professor Bran lost the most loved person a man has in this world, it seemed to me that all the students became his children, that he was working and thinking for the good of all people and we couldn't not agree with him and not support him in all that he was doing.

Professor Bran had many qualities and it is very hard for me to enumerate them. He was a teacher, a leader, organizer, theoretician and a pioneer in the economical science. "The Value Theory" is an economical theory, and if the science of the economy still needs theory, then that of professor Bran's must be taken into account.

The fact that he met his end in the institution which represented his whole life is a supreme proof that even God wanted Bran Paul never to leave ASE. The bust which we have unveiled today is the reflection of our pride, those of us who were his students, postgraduates, colleagues or co-workers, in acknowledging the value of our forerunner, Bran Paul.

From where he is right now, but also from where we set him today, Bran Paul sees us, loves us and will help us find the best way to move on further.

Stay with us and we will forever be with you, professor Bran Paul! For us to be better!

Thank you for allowing me the opportunity to tell you that I knew professor Bran Paul.

Bucharest, December, 10, 2010

RECTOR PAUL BRAN
– ERUDITE PROFESSOR AND VALUABLE GENUINE SOUL –

Florentina-Olivia BALU
Bucharest Academiy of Economic Studies

With deep regret that the Rector Paul BRAN is no longer with us, but with enormous joy that I had the chance to work with such personality, I try to sketch a brief portrait of him, as I have seen and known, in my quality of student, PhD Candidate and teaching assistant of professor Paul Bran.

The Rector Paul BRAN, I know from my academic years (1998-2002). It is he who told us the first course: ”Have a lot of dreams. Life will break the majority of them. For those that remain, hold them tight“. Although he untended to did, his words have penetrated deep into our students’ hearts and minds.

He was very, very loved and appreciated by students, esteemed and respected, both by those who was passionate about science, and those less interested in it. He loved being a teacher and he was doing his job with much passion. His presence at the courses could command respect through his academic reputation, his enormous knowledge, but especially through his special talent of knowledge sharing. The case studies which accompanied the theory, the power point slides so evocative and sometimes funny, his humor, but his innate grace of teacher and erudite professor attracted and excited generations of students. But that's not all ...

He had a special talent to stimulate and motivate the students. One of the projects, which Professor Paul Bran gave the students who worked with him for license paper, was: ”My Future Director/President Office”. And each student it seemed as if he had wings and was speaking with so enthusiasm about his architecture office, management tactics and projects, as a real president in person. They were feeling both special and responsible to issue a paper of the highest quality....

However, I knew much better Rector Paul BRAN only when I graduated from university and I worked as his assistant and PhD Candidate (2002-2006). I had the honor and opportunity of knowing him very well. If until then, I was impressed only by his skills as erudite and praiseworthy professor as the others around me told about him, after then both the testimony of his deeds and real actions, and his big soul directly captured and touched me.

Working with him in the same office, I discovered the true value of this personality, the Professor and Rector Paul BRAN. He was a gifted man of God, highly organized, with an amazing memory and synthesis ability, an eager for knowledge, a lover for innovation and an "up-dated” man at the age of informatics, keen on science in economics and powerful attached to the institution of Academy of Economic Studies.

The more the time was passing, the more increasingly I was becoming overwhelmed especially by his distinguished character and his intellectual and managerial skills. I was feeling so tiny, besides a so great professor. It was not easy to work with Professor Paul BRAN, but it was an enormous pleasure and challenge. I was feeling a huge attachment, boundless devotion and respect to this great professor.

I do not think I could describe through words the Professor Paul Bran’s true value, but I can mention enough deeds, actions and events created by this professor, so appreciated and loved by my soul:

- ✓ The Christmas trees that we decorated together in his office from the first floor from Căderea Bastiliei building (actually Council Room) in the last years of his life, the sound of Christmas carols and the joy of those who listened;

- ✓ His office before Christmas or Easter holidays, full, full of floral decorations and greeting cards in which all the others expressed their gratitude, respect and appreciation to Mr. Rector;
- ✓ The glad voice and happiness of a cleaning woman who storied that the Rector keeps the very little icon gifted by her near by all the other greeting cards gifted by other valuable and important people, different personalities coming from the academic and Bucharest business environment and not only...;
- ✓ The story of an assistant from IT Department which came to Rector, not very confident, and asking him for an advice about how he should act in a certain situation. And the Rector's very short answer: "Insist". And our assistant who tells us: "The Rector told me only one word, only one, no more: insist; and so I did, I persevered and I succeeded";
- ✓ And the life lesson…

One a day at an exam, I told him that I would like to have my own office. The professor's prompt answer was: "You, you would like much..." and switched quickly to another topic.

But surprise: after some time, he handed me a key of his office, telling me that I can come to work in his office whenever I wish.

Few people could understand my happiness from that moment. Not because I had an office now, but because a man so great, had so much confidence in someone so tiny. Moreover, I saw what a man of great character means: give the others the feeling of indifference, but in reality to be so responsive and sensitive to the wishes of the others. A big lesson I learned then: in fact, the genuine people are responsive and sensitive and fulfill the dreams of others.

He had many, many virtues… His intellectual and managerial capacity, his infinite patience, the ability of understanding things from the perspective of the others, the charisma and the fine humour, a little ironic, but with a lot of significances, with which he ended each conversation, are only some of his characteristics for which he was so appreciated and respected from the others. The passion he put in his courses, with which he lead his students, the special way he motivated those around him, to involve them the belief and the desire to succeed, contributed, of course, to the accentuation of his portrait as a very valuable man.

He wasn't only a very valuable man, but he created a context of values. He taught and created the faculty of «values» (The Faculty of Finances, Insurances, Banks and Stock Exchange/ Bourse de Valeurs) for which students he wrote about «value», in his book «The Economics of the Value». «I cannot to not connect the personality of the professor Paul BRAN to his book «The Economics of the Value» which he wrote with the soul and the mind of a real manager and visionary of the evolution of economics' values, and for the spirit and the mind of many generations of students and future real managers».

There might be a lot to say, but I prefer to conclude here, expressing my deep reconnaissance for Mr Rector and Professor Paul BRAN and to confess the fact that he was the person with which I worked with a lot of enthusiasm and which I will remember forever. He was and he remains a real model, respectable and worthy to follow in life, a genuine professional and personal mentor for me and for many generations of students and professors. He was and remains forever in our minds and souls.

RESPECT

Emilia CÂMPEANU
Bucharest Academy of Economic Studies

I can proudly say that I was a student of professor Paul Bran.

My perception about his reign ... a true PROFESSOR who held the highest academic class and by the emitted calm he imposes RESPECT.

I always admired him for the way to consider students as partners rather than novices.

Finally, I want to say about Professor Paul BRAN just two words: MAN and ROMANIAN.

PART II

Papers presented in plenary of the International Conference
"FINANCIAL AND MONETARY STABILITY
IN EMERGING COUNTRIES"

ASPECTS REGARDING THE RISK MANAGEMENT IN THE FINANCIAL INVESTMENT COMPANIES, IN THE CONTEXT OF RECENT ECONOMIC CHANGES

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Abstract. *The bubbles, either involving real or financial assets, previous to the subprime crisis bring at the investor's community's concern the elusive topic of risk mitigation. Funds industry need today, more than any time in the past, a clear, decisive and competent approach in risk management. A competitive financial investment company must take in consideration not only basic risk management measures, such as VaR, CFaR or PaR, but also more sophisticated tools, like Monte Carlo simulation or complex risk matrixes.*

Keywords: risk matrix; potential risks; value at risk; cash flow at risk; profit at risk; Monte Carlo simulation.

JEL Codes: G320, G230.

1. Introduction

The corporations, investment companies, investment funds, banks, generally, all economic organizations that pursue profit are complex, open systems that operate in an external environment marked with uncertainties. These can be transferred on that organization and can influence its goals and performance. Therefore, the management must identify the risks and adopt the most appropriate actions to soothe the effects of the risks within the acceptable limits, both as consequences and costs of avoidance/ transfer or insurance.

Thus, it is necessary to draw a systematic and periodical analysis of the risks associated to the activities performed by the company in its current operations on the market, in the relations with its specific environment, with the authorities or investors or its public(Cuzman, Manațe, Fărcaş 2006).

The major risks are of primarily interest, as they can significantly influence the organization goals. The segregation between a risk considered acceptable (the cost to avoid it is not justified in relation to the consequence) as compared to a major risk, consists in defining an adequate significance threshold, starting from aspects such as the frequency of occurrence, the probability or the impact on the organizational goals (MFP, 2005).

The successful operation of a company in the present competitive environment is increasingly conditioned by the existence of an information flow that contains attributes of reliability, exactness, relevance, update and opportunity.

Given these goals, the management will define: the type, contents, sources, recipients and the frequency to collect relevant data and information for the organization activity, also identifying the most adequate flow model, as to make it available on short notice to the staff so that to allow efficient reactions.

The data and information flow is both internal and external, representing one of the main components of the competitive intelligence system (IC) crucial today to modern organizations that aim to be also competitive.

The flow itself adds value to company's operations, but in fact it is boosted by the internal and external, flexible, efficient and fast communication on all interference levels with the internal and external environment, namely:

- on a symbolic identity level (from logo and slogan to systems of values recognized by the public),
- financial (e.g. periodical reports to be perceived as complete and relevant to users),
- socio-emotional (e.g. company to be perceived as a "*good citizen*", remaining close to modern values of durable and sustainable development),
- legal/ethical (e.g. the perception of correctness of the activities and relations with the authorities and partners, of corporate governance in investor relations.

The continuous change of the external environment requires periodical reassessment of the initial working hypotheses on which the strategic, tactical and operational goals were set. One of the key elements used by the performance management is to correlate hypotheses with goals and the staff responsible for performing these both on initial levels and on any possible reassessment of inputs, especially if outputs are being changed. Different techniques, such as "*war rooms*", brainstorming with expert teams, etc. should not be ignored at all, especially in an industry so sophisticated as the one of investment funds.

Any activity can benefit from the existence of certain well defined procedures intended for the most important aspects of a corporate business. The written documents, complete and precise, that can comprise: handbooks, instructions, check lists are made available to the staff ensuring the continuity of the activity if one key person is absent or unavailable. Also, it ensures the access to the knowledge needed to achieve the basic tasks at a minimum, desired and required, level.

2. General principals of risk management in financial investment companies (SIF)

The operational risk is defined (Basel Committee on Banking Supervision, 2001) as being "the *risk of loss resulting from inadequate or failed internal processes, people, and systems or from external events."* Thus, the operational risk does not depend on measurement or requests for capital, it depends on the management of processes, people and technology, and also, on external events.

As regards the financial investment companies (Cuzman, Manațe, Fărcaş, 2006), the operational risk represents *the risk of recording losses or failing to achieve the expected profits*. This risk is determined by:

- internal factors:
  - inadequate performance of certain internal activities due to insufficient internal procedures,
  - improper personnel,
  - inadequate information systems,
  - failure to adapt to continuous technological progress etc.
- external factors:
  - hostile economic environment,
  - changes in the business environment due to legal frame incoherencies etc.,
  - political-social events,
  - environmental conditions etc.

The management of the operational risk starts from a more comprehensive risk matrix (Manațe, Fărcaş, Pescar, 2006), that includes both the *real* risks (that already occurred in the past and affected the organization) and the *potential risks* (that did not occur in the past but can occur in the future) which implies the management of processes regarding the

identification, valuation and assessment of the operational risks, determining the responsibilities, taking measures to mitigate and anticipate risks, periodical review and progress monitoring.

Mastering the real risks is a guarantee that the internal control systems are effective. In other words, mitigation of real risks enables the company to no longer face in the future the same risks, to the same extent it has faced in the past or to limit the negative effects of risks up to an acceptable level.

The operational risk does not include the strategic risk and the reputational risk (Cuzman, Manațe, Fărcaș, 2006). Along with the investment risk, the strategic risk and the reputational risk, the operational risk is included in the major risks category, namely of the risks with impact on the assets and/or reputational condition of a company.

The operational risk is an issue falling within the direct responsibilities of the executive board, the efforts connected to this field being coordinated at this level of the organization.

The developments within the field of investment funds revealed that the operational risks can become an important problem for the investment funds, these risks being able to cause significant losses. The management of operational risk implies to undergo the following five steps (adapted subsequently to AS/NZS 4360, 2004):

1) identifying risks;
2) risk quantification;
3) solutions to overcome risks;
4) administration of the risk management process;
5) establishing the risk management strategy and setting the internal mechanisms required for implementation.

The management of operational risk aims to:

- ✓ Ensure the *minimum capital requirement*s to cover risks;
- ✓ *Secure employee involvement* and promoting both of responsibilities toward the operational risk, meaning to reduce losses by identifying and reporting the events that caused losses;
- ✓ *Create a corporate culture* in order to identify and anticipate events of operational risk.

We still have to underline that not the models and techniques are the most important, but the attitude toward risk and this is, first of all, an aspect of the corporate culture created over time and not on the spot by adopting some compulsory technical procedures

Risk management implies changing the style of management, primarily the managers' attitude, that besides the reactive approach of the impact o some risk events produced should develop reactions oriented to the future. Identifying the possible threats before they occur and determine unfavorable consequences over the goals set is the main mission of the management. This means to adopt a proactive management style.

Proactive management relies on the principle: *"better prevent than wait for the occurrence"* and this type of managers try to discover the future risks associated to some changes in the external environment. In the terminology adopted in some countries, the risks that did not yet occur, but that may occur in the future, are known as potential risks.

On the other hand, identifying and ranking the threats to which the organization is exposed depending on how frequent it occurs and the size of the impact over the corporate goals (AS/NZS 4360, 2004) contributes to better allocate resources, allowing the company to focus its efforts on important aspects, thus facilitating the achievement of corporate goals.

Generally speaking, risk management, and especially risk matrix, through the risk hierarchy according to frequency and impact criteria is a good support for internal control.

3. Risk management procedures and practicies tailored for financial investment companies (SIF)

Risk affects company activities generally and especially the results of the activity. Since the results of the company directly depend on the working methods accepted and used in the investment process, on communication and inter-departmental relationships, on the knowledge and efficient use of human resources, on the reliability and security of the use of internal systems, risk management is a crucial component in the current activity of the company.

For the financial investment companies it is defined that (Stancu, 2002): "*the risk of an investment represents the possibility to have deviations of the returns relative to expected average, following the anticipated and unanticipated variation of economic and financial phenomena that determines it. Reported to the frequency of this deviation and to the distribution more or less symmetrical compared to the average, one can anticipate the risk's magnitude.*"

The investment risk management is performed within some risk limits set by mathematical algorithms and by the use of measurement methods based on some notions such as: Value at Risk – VaR, Cash Flow at Risk – CFaR and Profit at Risk – PaR, while the management of operational risk is performed mostly through procedures (RiskMetrics Group, 1999).

As regards the financial investment companies, the documents for risk reporting proposed by us are of two types:

- Reports of risk events and,
- Risk reports.

The reports of risk events are prepared by different positions in the organisational chart, while the risk reports will be prepared by the members of the risk management division.These reports are electronic, distributed and accessed automatically through the company server. The person in charge to prepare the event or risk report, as appropriate, prepares the document in electronic format then posts it in the place indicated on company server.

All computer applications that support the reporting process rely on calculation algorithms that are meant to automatize the process of risk measurement and reporting – the algorithms and software being part of the integrated system of risk management (Manațe, Fărcaş, Pescar, 2006).

3.1. Reporting the market risk – value at RISK (VaR) SIF Banat - Crişana approach

The value at risk (VaR) is the most common measurement method of market risk, being used by financial companies to determine the maximum loss that can be tolerated by a certain portfolio, in a certain period of time and for a given probability (RiskMetrics Group, 1999). VaR measures risk on different levels, starting from the level of one item up to the level of a complex portfolio. VaR measures risk both by statistical methods and by simulations that can measure the volatility of portfolio assets. VaR is a flexible measurement tool, it can calculate different time horizon (from one day to one month) as well as different levels of trust (between 90% and 99%).

The most common methods for calculating VaR are, that are also used in the risk management at SIF Banat-Crişana are:

1. VAR/COVAR method – variation/co-variation;
2. Monte-Carlo simulation method;
3. EWMA model (Exponential Weight Moving Average);
4. Historical-simulation method.

Technically speaking, VaR valuation for the portfolio of financial instruments of SIF Banat-Crişana implies the breakdown of the portfolio on classes (Manațe, Fărcaş, Pescar, 2006). After the breakdown of SIF portfolio in several classes of instruments, calculation algorithms were designed for each class and a calculation model of VaR parameter was adopted:

- For the class of stocks traded on BSE, liquid, VaR is calculated by the method Variance – Co-variance;
- For the class of stocks traded on BSE, illiquid, VaR is calculated by Monte-Carlo simulation;
- For the class of unlisted stocks, VaR is calculated by Monte-Carlo simulation, starting from the capitalization of net profit;
- For each class of bonds, deposits and certificates of deposit and the class of treasury bills and bonds, VaR is assessed by Monte-Carlo simulation method starting from the statistical data of the variation of values that can be determined;
- Fot the entire SIF portfolio, the VaR parameter will be aggregated, by adopting the Monte-Carlo method.

3.2. Reporting the risks that affect the financial-economic results and the liquidities of SIF Banat-Crişana

As regards SIF Banat-Crişana, the sources that size the cash flows and implicitly the net result of the company are the following (Manațe, Fărcaş, Pescar, 2006):

1. revenues/receipts from the interests related to financial instruments with fixed income (RON and foreign currency-denominated bank deposits, RON and foreign currency-denominated treasury bills and bonds, RON and foreign currency-denominated corporate and municipal bonds),
2. revenues/receipts from foreign exchange gains related to foreign currency-denominated financial instruments,
3. revenues/receipts from the dividends due from the participations in the share capital of companies in the portfolio,
4. revenues/receipts from the transactions regarding divestments of participation held in the share capital of companies in portfolio;
5. revenues/receipts from the support activities of the company.

The risk to fail to achieve the financial flows, estimated annually within the "*Financial Plan*, are measured by two specific measures:

a. PaR – Profit at Risk and
b. CFaR - Cash-Flow at Risk.

The identified influence factors that shape the variability of these two measures analyzed, Cash-Flow and Net Profit, are:

- Variation of the rate of interest (split on types of investments),
- Variation of the rate of foreign exchange,
- Variation of the amount of dividends due/collected by SIF Banat-Crişana,
- Variation of the revenues from the sale of stakes in company portfolio.

The variability of the results (Net result and Cash-flow) is analyzed compared to the budgeted level in the Financial Plan for that year. The starting point for the analysis of the influence factors presented further in detail is the corporate Financial Plan, since the tool relies on the mathematical formalization of the relations between the identified influence factors and the two inputs and out measures, thus meeting the demands of the study.

Raporting profit at risk PaR

The profit at risk (PaR) represents the maximum decrease of net profit (P) as compared to a profit target goal that can be recorded in a certain reporting period, with a certain level of trust, due to the exposure to market risk. The following risks are considered, that can significantly affect the main revenue flows:

1. Interest rate risk,
2. Exchange rate risk,
3. Risk to fail to achieve the planned Cash Flow, which is due to :
   3.1. Variation of the amount of due dividends from participation in the share capital of issuers in SIF Banat-Crişana portfolio,
   3.2. Variation of the revenues from the sale of the stocks in the portfolio,

Reporting cash-flow at risk CFaR

Another parameter for risk assessment is Cash Flow at Risk (CFaR) that represents the maximum decrease as compared to the cash flow target goal that can be recorded for a certain reporting period, with a certain level of trust, due to the exposure to market risk that can significantly influence the main receipts/payment flows. The variation of the planned Cash Flow has a source in the liquidity risk.

The financial operations performed by SIF Banat-Crişana refer to the daily inputs and outputs of cash flows, as there are daily requests for funds to finance the investment projects and to cover the current needs (maintaining the normal operation of the company: salaries, taxes and duties, commissions etc.) and availability of funds due to reaching maturity of the financial instruments with fixed income or due to the receipts from the divestments in portfolio.

The lack of correlation between receipts and payments can lead to:

- miss investment opportunities, namely not taking full advantage of the capital invested,
- failure to achieve the expected cash flows,
- the lack of necessary cash.

Most of the influence factors on profit have also impact on cash flows, influence factors from the monetary market and from the capital market.

In terms of the monetary market, by the maturity of financial instruments with fixed income or in the exceptional situation of early redemption of financial instruments with fixed income, the cash flow table offers the image of monthly receipts (interests, foreign exchange gains or losses) and payments (bank commissions, foreign exchange losses) from the monetary market monthly, respectively quarterly, half-yearly or annually.

In terms of the capital market, the variation of the dividends collected and the receipts from the sale of financial instruments has direct impact on company's Cash Flow.

The change in any item: interest collected, dividends collected, receipts from the sale of financial instruments or payment of commissions, taxes, salaries or other services rendered by third parties is reflected in the deviation from budgeted level, deviation measured both in absolute value and in percentage.

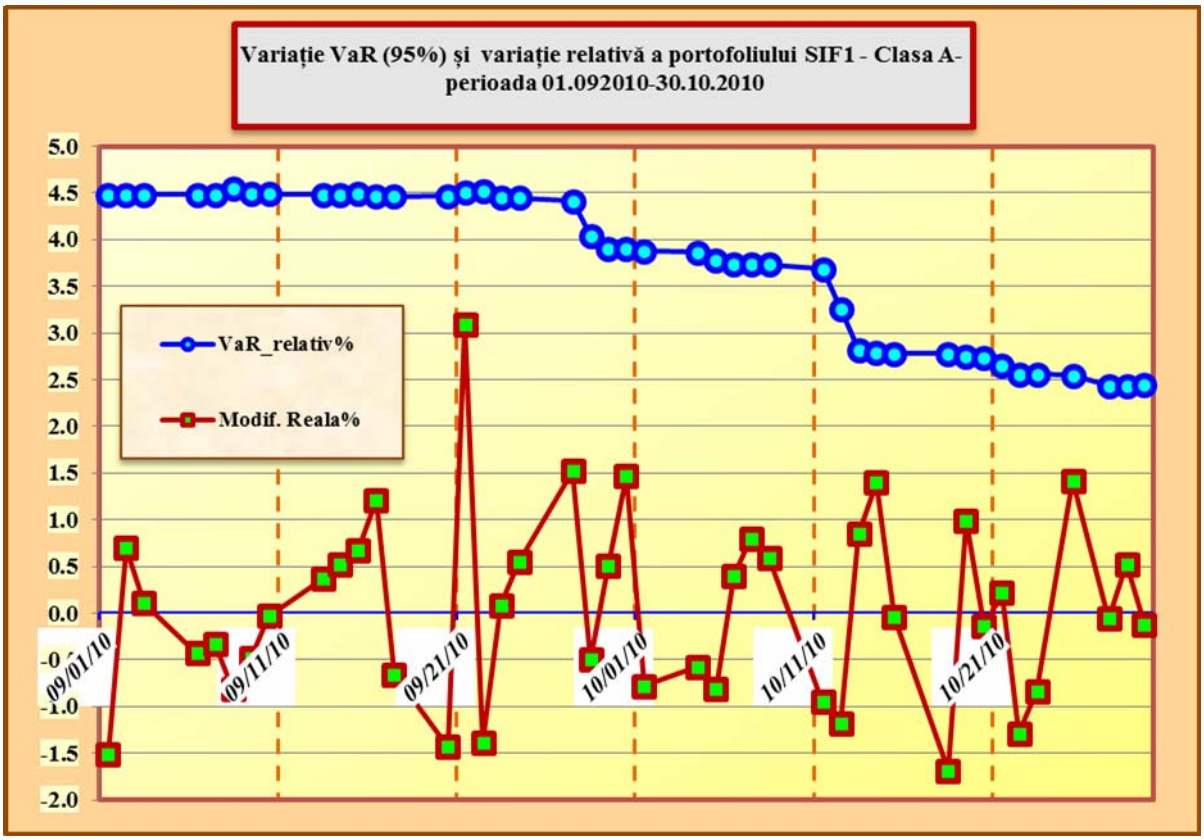
4. Case study: VaR assessment for class a in SIF Banat-Crişana portfolio

We will show an example to assess risk for a subportfolio within SIF Banat-Crişana, portfolio of financial instruments, that we called Class A. Subportfolio Class A contains companies in SIF Banat-Crişana, portfolio, listed, liquid and traded on Bucharest Stock Exchange. The liquidity conditions refer both at the trade volume and at the number of days that should be greater than one percent preset, e.g. greater than 66% from the number of days the stock exchange operates, as for this class, the VaR index is calculated daily. The breakdown in disjunctive classes is done regularly for the entire portfolio of financial instruments SIF Banat-Crişana, by adequate calculation applications and programs

The following were taken into consideration for VaR valuation at Class level A:

a. VaR calculation method: Variance – Co-variance;
b. Calculation period – one day, calculation of daily VaR;
c. Level of confidence 95%.

As of September 1, 2010, there were 35 issuers in Class A, 1st and 2nd tiers on Bucharest Stock Exchange and Rasdaq Electronic Stock Exchange. The results of applying the variance-covariance method to assess the value at risk, VaR, for a two-month period of time, September and October 2010, are presented below. It means that in this interval, the variation of the portfolio did not exceed the VaR estimated value, at the confidence level of 95%.



5. Conclusions

The risk management process ensures:

- identifying the types of risks at which the company is exposed;
- setting some limits – alarm thresholds;
- taking decisions concerning the potential values of losses by:
  - assuming some risks;
  - preventing and reducing of other risks through control measures;
  - removing the most exposed activities;
  - risk transfer, through:
    - externalization,
    - conclusion of insurances
  - diversification on external markets;
  - hedging.

The techniques and models for assessing the market risks related to SIF financial assets portfolio offer besides assessing the value risk also possibilities to simulate different situations for investment/divestment on the monetary capital market.

By implementing a suitable design of appropriate risk management integrated system, SIF Banat – Crișana considered the following organisational benefits:

- ✓ facilitating the efficient and effective achievement of corporate goals;

- ✓ changing the management style, supporting a proactive attitude towards risk to boost competitiveness;
- ✓ integrating the item "*risk*" in the investment reports submitted to the Investment Committee and a better perception of investment risk and of certain important concepts, such "*risk adjusted return*";
- ✓ choosing the best investment projects in terms of "*risk adjusted return*";
- ✓ ensuring the main conditions for a sound and efficient internal control in terms of the risks facing the company, either internal or external.

We conclude by underlining that a performing management is, first of all, a rational one, defined not by only the effort to avoid risks but, above all, characterized by a disciplined and methodical effort to control risks and limit their consequences on the organization's objectives. Also, a rational manager does not try to completely eliminate uncertainty but rather reasonably diminish the incertitude related to a specific context or situation.

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A CRITICAL LOOK OVER THE ROMANIAN LOCAL PUBLIC FINANCE DECENTRALISATION

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Abstract. *This paper work aims to identify the issues of Romanian local public decentralization, recommending measures to streamline the public finance circuit. The reorganization of the public government in three levels, the growth of the financial independence of local authorities and public administration's decisions' transparency next to a better information of citizens, coupled with their empowerment and involvement in public affairs, all these represents key points for the discharge of decentralization of public finances: to increase social welfare.*

Keywords: decentralization; reform; public finance; public revenue; public expenditure.

JEL Code: H700.
REL Cod: 13G.

1. Introduction

After 1990, when democratic changes occurred in Romania, local communities have been assigned with new responsibilities, especially in managing public affairs for the city or the county, because of general need to be compatible with the situation in European public administration. In this way, Romanian authorities have developed a series of regulations in decision-making and financial decentralization of public services to local government. Most of these regulations were unsuccessful, due to lack of local institutional capacity to effectively manage these responsibilities. The issues of decentralization implementation were and still are many, and most have been generated as a result of the central government fail to manage the reform[(1)]. The process is incipient in all areas, but the progress is still low, due to legislative incoherence and political instability. Currently, decentralization is partial, with some exclusive powers of local government, but also with shared tasks and even some central government delegations, which leads the authority overlapping and also to gaps in funding.

2. Research results

The improvement of quality and efficiency in delivering public goods and services by accelerating the process of decentralization is one of the fundamental premise of a democratic state, which wants to become efficient in meeting community needs (Catană, Catană, 2010). The transfer of power from central to local levels lead to immediate benefits, whereas local authorities have better access to information, that meaning a higher capacity to know local needs and preferences for different goods and services, answering to their needs more than successful than the central government (Hayek, 1945). The local power authority strength would generate better management of any situation that have to be solved in the country and would adapt best staff, resources and procedures to the particular circumstances in a superior

way that one adopted in centralized management (Collins, Green, 1994, Robalino et al., 2001). But there are theories (Crook, Sverrisson, 1999, Smith, 1995) who claim that the lack of human, technical and financial resources of local government will prohibit local governments to provide adequate public services. Reduced administrative experience and the absence of a democratic tradition (Fizbein, 1997), inadequate legislation, the total lack of government involvement and local political parties' interests (Manor, 1999) are additional impediments. All these stop the objectives of decentralization, namely the prompt response, in terms of efficiency and effectiveness, to the citizen's needs (Moșteanu, Lăcătuș, 2008). The efficiency of local public finance decentralization depends on factors such as: the size of the country, the privatization expansion in the economy, the ability of local authorities to identify and to increase sources of funding and to enhance the information transparency and the administrative capacity (Tanzi, 2000). For decentralization it is recommended to be managed carefully because "a decentralization magic bubble" has effects only in a certain framework and for a particular form of implementation, which must be customized for each case (Jutting, Uchimura, 2007).

3. Research method

The work paper highlights some of the issues of the decentralization in Romania, having the Romanian public finance law, the European Charta of Local Self-Government and a range of statistical data as basis for our research.

4. The obtained results

In a plain process of local public finances decentralization, Romania faces five major challenges: the distribution of balance amounts and the amounts shared from national income tax; the undervaluation of the regions' role; the lack of independence in setting local taxes; the local loan limitations; the lack of citizen involvement in public affairs.

Romania is organized into 42 counties. The requirements for European Union integration has led to eight developing regions, by grouping the counties on the specific local characteristics. These regions do not have a higher administrative level status than counties because they lack the decisional and financial power. Their role is only to manage the European funds and to create regional development statistics that have regularly to be reported to EU. Their work in EU funds absorption has so far been a total failure, as there have not been attained the levers for regional development objectives, not even the encouragement of partnerships and regional spirit ones (Dincă, Dincă, 2009). The role of regions in Romania is still undervalued, even though many transition countries from South-Eastern Europe, similar in terms of economic and political context, have taken this step and the effects were those expected. Therefore, taking into account the experience and the success of other countries such as Poland, Czech Republic, Latvia (Dable-Norris, 2006), it becomes necessary to build a new administrative level, with financial and decision-making power, with its own budget of income and expenditure, as a first tier of decentralization, under the immediate authority of a Government which have to encourage local and regional development strategies and local communities to complement each other in public affairs and not compete against each other. An administrative reform would improve the quality of response to public needs. The need for regional development cannot be satisfied only by solving the regional problems. In addition, we must consider the fact that in creating these regions, the state took into account the characteristics of the communities, in historical, economical, demographical, social, ethnical area, the level of urbanization or industrialization. Therefore, we can speak of a certain level of regional homogeneity, in terms of the citizens' needs with public content.

Currently, many of the regional requirements are in the Government charge or are delegated to counties which respond them differently, depending on available funds received for this purpose from the state (directly related to economic development and the ability to create a taxable area) or banking on their own self-financing capacity. Thus, depending their

disposal sources, the communities register different level of financial pressure in achieving fragmented regional objectives (such as road networks) and the consistent lack of supervision and monitoring in general, lead to loss of efficiency in delivering public goods and services and even the appearance of corruption or the disguised embezzlement of public funds (Dincă, Dincă, 2009). A big fragmentation of public tasks involves the loss of key targets and the developing of a substantial bureaucratic apparatus, whose operating costs affect the state budget, already sensitive to economic crisis.

We consider inadequate the shared income tax and the amounts of equalization distribution method. From the income tax collected locally, some parts remain available to the local budget, as part of their income. Thus, generally (except Bucharest), 44% of collected amounts are directed to the budgets of cities, towns and villages in which are operating the income taxpayers, the budget of the county retains 12%, 21% is allocated to balance the budget of cities, towns and villages from the same county, and the remaining 22% is transferred to the state budget(2). The mathematical formula for sharing the income tax collected to the county level has a big problem: the amounts of money partial return to the same administrative units which have generated them and the equalisation amounts share, although fair, is only cancelling the disparities at the county level. Part of the income tax attributed to any community has a direct and strong connection with the degree of economic development, because as the taxable mass is more consistent as tax collected are higher, so the remaining amount available for the delegated public services is higher. Of course, the balancing funds will be more generous in a developed county. Therefore, some counties have public goods and services of superior quality and amount, and others, the poor ones, are limited by their financial capacity to raise own tax revenues and the shared taxes. In this context, a relative equalization would be possible through a regional treatment of the situation. An income tax collected at the regional level and distributed to lower levels by consistent criteria, such as total population, the degree of urbanization, the active population, the average income per capita, the degree of industrialization, the contribution to national GDP, would solve these economic and social disparities.

Similarly, there are needs for improvement in the balancing funds area, with a statistical identification of a reference level of the average public expenditure per capita nationally. Excess should be guided to local public investment and the deficit would be covered by regional or national sources. So, the social welfare will not be only a characteristic of certain areas, the added value will be distributed equitably in the economy, with priority access for economically or socially disadvantaged communities and the citizens and local authorities will be more responsible with their money and duties. However, the existence of an intermediate level of administration at the regional level enables a superior knowledge of specific regional issues, an easier identification of the particular areas of interest which may apply for European funds and reduces regional development disparities.

Once the regional government level is established, the biggest problem to be solved is the integration of public sector services in the new administration. Romania is already confronting with these shortcomings, even if the government has not yet a complex structure with three levels, whereas the provision of public services takes place in a confusing context of the coexistence of decentralized offices in the territory with the territorial administrative units which have the same tasks. The central government must reconsider its position and to keep only the regulatory, monitoring and evaluation functions. Also, it must deal strictly with issues of national interest, such as improving cooperation with other countries, the major transport corridors, the technical assistance to regions. The objectives that go beyond the counties' particular interest should be looked for by the regional actors. Thus, the elaboration of local and regional development strategise the implementation of regional labour market policies, the provision of the regional important public services, all these, cannot efficiently be accomplished either from central or local level. All the public sector skills which implementation at local level do not respect criteria as to generate economies of scale or the

principle of subsidiary, should pass in regional responsibility (university education level, environmental protection, regional infrastructure).We underline the fact that the income tax is a national tax ruled by national laws and local authorities have no power to decide on it, but only collecting duties. Gathering tax at the county level and then to break down a certain percentage that remain available to local government does not means autonomy and property, in the condition that all amounts of money have a precise destination established by central government. Money is indeed local property, but there is no right to decide how to use it because they serve to measures of national interest and not purely a local one. Thus, local government authorities are only in the position of performers. All of these executive orders give more the aspect of centralization to the national public financial and administrative system. So, we cannot yet identify a real decentralization, both in terms of local government deciding rights and financing specific local public interest. So far, Romania is on an intermediate level of the decentralization reform, namely the deconcentration of public services. This assertion is based on the fact that between 60% and 80% of local government funds are the transfers and subsidies (Moşteanu, Lăcătuş, 2009), so we can consider that between 60% and 80% of local functions are decentralized. In fact, decentralization starts by deconcentration, by preparing territorial units, by their gradual empowerment and awareness, by preparing their financial and administrative capacity. Romania still does not seem to have the government apparatus ready for reform. The incoherent legislation, the interest groups' actions, the lack of public funds, the inefficient and unjustified spending of public money for objectives that often are not public, the consistent but inefficient bureaucracy, the lack of information and often the lack of transparency on the public sector activities, the unprepared public clerks, the political interests, all these delay the process of decentralization and the local financial autonomy to increase. In same context, there is need for a stronger participation of citizens in making decisions on regional and local policies. Although the law gives them this right, citizens' lack of involvement leads to the adoption of measures relating to community-state but that does not reflect the real needs of the community. Public consultation has a great importance. The citizens informing in public affairs would help by their awareness looking their needs and the public possibilities to answer, by a better accountability and communication of people with authorities. The effect is great for the process of decentralization. Unfortunately, Romania has not yet developed sufficient levers to inform citizens and the existent ones are not accessible or cannot be approached by general public. Also, we are faced with a lack of interest in local public affairs of the citizens, coupled with lack of economic and civic culture. Thus, the legislative inconsistency and lack of coherence next to the inefficient allocation of time and resources are worsening.

Another problem of the decentralization is local taxes and fees. Until recently, the local authorities, even they had no right to set local taxes and charges, they have the liberty, depending on budget needs, to increase the amount of tax or fee by 50%. Subsequently, the additional tax fell to 20%[(3)]. This fact limits more the financial autonomy of the local government. In addition, they cannot enjoy a system of control of the property. For example, if a taxpayer owns several buildings on different territorial administrative units, it will have to pay an additional tax on housing purposes properties (other than the residency house), no matter of their location. Local governments do not have a common database, so tax collection is based only on the sincerity of owner's declarations. That generates a significant financial loss for local budgets.

We found gaps even in the local borrowing area. Local governments are unable to increase public local debt (loans, interest and related charges) in proportion to their needs, thereby limiting its funding opportunities. There are constraints in using those kinds of funds, only for local investments and for refinancing the local government debt, with no possibilities to cover local budget deficits[(4)]. The responsibility to return a local credit involves a sufficient

local financial capacity and management, which supposes indirect efforts in increasing local financial autonomy (Lăcătuş, Văduva, 2009).

The liability for a loan repayment generate some efforts in collecting public financial resources needs to identify new extra sources and a better economical and more efficient management of existing ones, as the premise for an increasing decentralization process. In addition, if the objective of a loan represents the local investment, there can be shown some immediate effects on the community development through the additional benefits provided to meet the needs of citizens. So, the correlation between the financial local autonomy and the access to the financial market resources is a positive and interdependent in both directions (Moşteanu, Lăcătuş, 2008). In this regard, we welcome the growth of freedom in local borrowing and its diversification, in the context of perfecting this area legal framework.

Of course, throughout this process of decentralization there may be seen advantages and disadvantages. It is clear that local issues are much better known as local level and priorities can be better established. This way, public services offered to the citizens will respect European standards seeing their quality and cost. Therefore, we can appreciate that the future of the decentralization process is primarily related to the political will expressed at all levels, in line with citizens' needs and the availability of all stakeholders involved in this process to effectively participate, understanding and rationality, at the decentralization implementation in practice. We believe that it is possible only coming from a realistic, objective analysis for the strengths, weaknesses and opportunities offered and for all problems that may appear along the process. The legislation also should take local bankruptcy procedures and safeguard measures of local public administrations, preferable to current restrictive regulations which are lowering effects on the local financial risk, but are restricting the collectively autonomy and development.

Obviously, decentralization is not a simple process and easy to manage, but it must be developed as to reach the intended target, so that local government to fulfil under the best conditions its reason of being: qualitative services for all community.

5. Conclusions and recommendations

Regardless of the measures taken or under the goal, their implementation will be extremely difficult, due to political and social-economic Romanian context. Therefore, we have still to wait the main result of decentralization, namely welfare. Meanwhile, the traces of a decentralization process started relatively early, in 1990, but poorly managed, had as effect a wide range of failures of the state, both of omission and action. This led to a serious loss of credibility of public authorities, both local and central, with negative implications in foreign investment and policy interests. Therefore, taking into account the analysis undertaken, we recommend: an administrative reform with three levels of government, for streamlining and improving public financial circuit; a clarification of the administrative tasks on each administrative level and of resources necessary for their proper functioning; the increase of local fiscal autonomy, rethinking the distribution of income tax allowances and balancing funds; the better informing of citizen and an increasing of their involvement in local and regional interest, both with a better accountability; some measures to reduce bureaucracy and the interest groups actions, with a good impact to the systemic corruption; to increase transparency in public government activities and a better training of civil servants; more freedom in local government borrowing from the financial market, in a careful regulation and monitoring context.

Notes

(1) www.descentralizare.ro

(2) The Law No. 273/2006 on local public finance, published in Official Gazette Nr.618/2006, with all amendations and supplementations.

(3) According to Law No. 571/2003 regarding the Fiscal Code, published in Official Gazette Nr.927/2003, with all amendations and supplementations.

(4) See Law No. 273/2006 on local public finances, published in Official Gazette Nr.618/2006, with all amendations and supplementations.

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SELECTION AND EVALUATION OF PERFORMANCE OF AN AGGREGATED PORTFOLIO CONSISTING OF SECURITIES LISTED ON BUCHAREST STOCK EXCHANGE

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Abstract. *Based on the valuable experience of fund managers and individual investors, modern and postmodern theories development process, regarding selection, management and optimization of investment portfolios, conceptualizes the basis of philosophy, investment style, diversification importance and the mathematical tools used in measuring performance and risk elements.*
This study emphasizes some characteristics regarding the application of modern portfolio theories for an effective management of an aggregated portfolio, in the Romanian emergent capital market framework.

Keywords: investment portfolio; selection; optimization; risk; performance.

JEL Code: G20.
REL Code: 11B.

Introduction

Any investment process implies different characteristics, determined by the level of development of local markets and the emergent feature of the capital market. The complexitiy of the process derives from the market size and liquidity, investors' attitude toward risk, transaction security, local regulations regarding foreign investment and the possibility to repatriate non-resident profits. Investment risks are more complex in emergent markets, as a result of political decisions that affect economic stability. Nevertheless, an emergent market provides more profit opportunities. A developing economy attracts investors that estimate a better profitability rate to the capital invested, compared to developed capital markets, therefore showing a higher willingness to accept risks.

Even if there is still a limited number of issuers listed on the Romanian capital market, providing limited investment opportunities, one can make a selection of stocks offering satisfactory return rates in a controlled risk environment. This study attempts to examine the Romanian capital market during 2006-2010, in order to identify a selection, optimization and evaluation algorithm for an investment portfolio.

1. Selection of stocks in an investment portfolio

1.1. Defining the time horizon

The first step in the process of selection of an investment portfolio consists in the analysis of Bucharest Stock Exchange evolution during 2006 – April 2010. Although the resumption of the uptrend on Bucharest Stock Exchange has started during the first quarter of 2009, it was considered necessary to relate the temporal evolution to the moving averages indices (see Figure 1). As long as the quotations of the listed stocks stay under the moving

averages curves, from a portfolio manager point of view this period *is not eligible* for considering the option of investing in listed securities. The trend analysis (using moving averages of 200 and 300 periods) generates three distinct time periods. The first period (1) is between early 2006 and late 2007, when both BET-C and SIF5 (one of the most traded secutities) are uptrended and above the moving averages for almost the entire period of time. The second period (2), between December 2007 and August 2009, reflects the impact of the financial crisis on the Romanian capital market. Both quotations are below the moving averages curves. Finally, the third period (3), between August 2009, when the moving averages curves are crossed by both BET-C and SIF5 quotations, and April 2010.

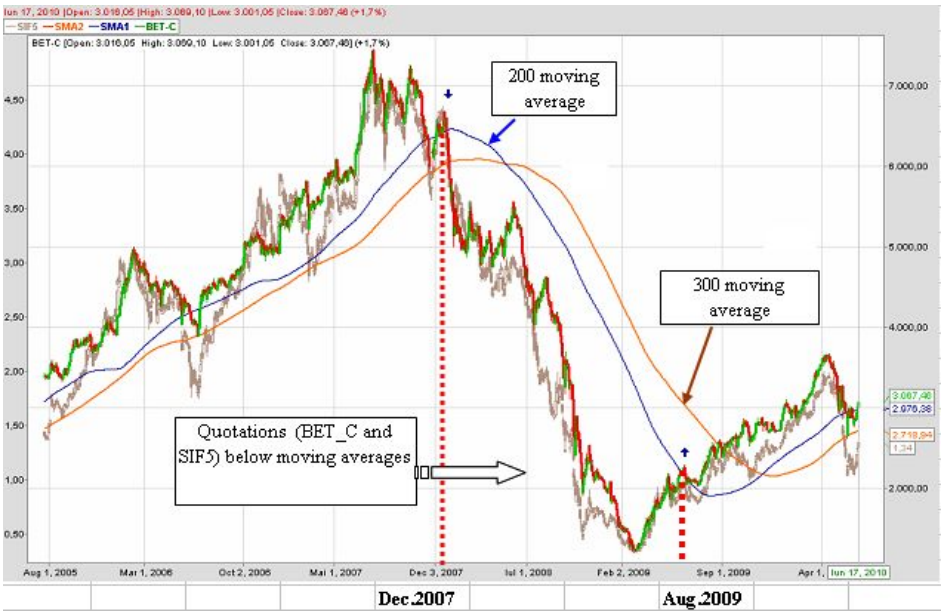

Figure 1. *Selecting the analysis time horizon*

During fourth quarter of 2007 and first quarter of 2009, the main goal of a portfolio manager has been to to protect the investment. The analysis of portfolio securities is not relevant during this period, as long as the portfolio is protected, both profit and loss being limited whatever the market evolution.

1.2. *Assumptions used in the selection methodology*

The criteria used in selecting securities took into account *the liquidity* (in terms of number of days traded, trading volume and traded value) and *the degree of* representativeness for the Romanian economy (selected issuers must „cover" adequatly the activity fields represented on the stock exchange). The results analysis based on selection criteria showed a constant feature throughout the studied time horizon, namely that eight issuers (see Table 1) cover more than one third of the trading volume and over 75% of the traded value. Even in these circumstances, the problem of identifying an optimal structure for a market representative protfolio that satisfies the criterion of Romanian economy representativeness still arises. Nevertheless, we tried to find an answer to the following question: To what extent a market dominated by the same issuers can meet the best return-risk ratio condition?

Table 1

Stock exchange performance of „dominant" issuers

	Emitent	2006		2007	
	[%]	Volum	Valoare	Volum	Valoare
1	SIF1	1.8%	6.4%	2.7%	8.9%
2	SIF2	4.6%	15.4%	4.5%	14.3%
3	SIF3	3.3%	10.6%	3.0%	8.7%
4	SIF4	2.6%	5.8%	3.0%	6.5%
5	SIF5	4.1%	15.8%	4.3%	15.9%
	TOTAL I	**16.4%**	**54.0%**	**17.5%**	**54.3%**
6	BRD	0.3%	7.1%	0.3%	7.7%
7	TLV	6.1%	9.7%	9.3%	8.5%
8	SNP	12.0%	9.3%	9.3%	5.0%
	TOTAL II	**18.4%**	**26.1%**	**18.9%**	**21.2%**
	TOTAL	**34.7%**	**80.1%**	**36.4%**	**75.5%**

By applying the selection criteria, we identified 38 securities, ranked according the sectoral criterion and taking into account the peculiarity of the operational field of each issuer (Table 2).

Table 2

Economic representativeness of selected securities

No.	Issuer	Ticker	BSE Tier	Field of activity	No.	Issuer	Ticker	BSE Tier	Field of activity
1	SIF Banat-Crişana	SIF1	I	**Financial investment companies (I)**	22	Compa	CMP	II	**Industrial equipment (V)**
2	SIF Moldova	SIF2	I		23	Vae Apcarom	APC	II	
3	SIF Transilvania	SIF3	I		24	Armătura	ARM	II	
4	SIF Muntenia	SIF4	I		25	Artrom	ART	II	
5	SIF Oltenia	SIF5	I		26	Electrocontact	ECT	II	
6	Banca Comercială Carpatica	BCC	I	**Banking and other monetary intermediation (II)**	27	Electroputere	EPT	II	
7	Banca Transilvania	TLV	I		28	Turbomecanica	TBM	I	
8	BRD Societe Generale	BRD	I		29	UAMT	UAM	II	
9	Broker	BRK	I		30	Impact	IMP	I	**Other industries (VI)**
10	PetrolExportImport	PEI	II	**Extraction of crude petroleum and support activities (III)**	31	Bermas	BRM	II	
11	Rompetrol Well Services	PTR	II		32	Eforie	EFO	II	
12	Rompetrol Rafinare	RRC	II		33	Excelent	EXC	II	
13	Oil Terminal	OIL	I		34	Flamingo	FLA	II	
14	SNP Petrol	SNP	I		35	Prodplast	PPL	II	
15	Sinteza	STZ	II	**Chemical industry (IV)**	36	Socep	SOCP	I	
16	Azomureş	AZO	I		37	Siretul Paşcani	SRT	II	
17	Oltchim	OLT	I		38	Vrancart	VNC	II	
18	Amonil	AMO	II						
19	Policolor	PCL	II						
20	Antibiotice	ATB	I						
21	Biofarm	BIO	I						

The suggested selection is also balanced from the point of view of BSE tier: 18 issuers are listed on the first Tier of BSE, and 20 issuers are listed on the second tier. Further, data regarding the close price has been collected for all 498 trading days. Where an issuer had no trades during a trading day, we considered the latest available closing price, in order to determine the daily return for each issuer. The daily return calculation did not take into

account the dividends. The standard deviation determined using Excel (*stdev*) is used as a measure of risk. Using MathCad, we calculated the matrix of covariances between return rates for the 38 securities selected. The sequence of steps taken in the selection and optimization of a market representative portfolio, according to H. Markowitz's set of assumptions, has encountered some constraints, one of them being the negative weights observed for portfolio's securities, and issuers intensively traded (such as SIFs, banks, SSIFs and petro chemistry) appeared as subject to short sales.

2. The sectoral criterion for developing an aggregated portfolio

2.1. Definition and optimization of constituent portfolios

The results generated by the optimization process required the restatement of the original selection and the structuring in representative portfolios at economic sectoral level. We have: PO1 – „SIF", PO2 – „Banks", PO3 – „Petro", PO4 – „Chem", PO5 – „Equip" and PO6 – „Other". The last portfolio (PO6-Other) is a non-homogenous portfolio, consisting of various issuers operating in different fields of activity, that cannot be associated with the first five classes. The overall optimization process extended to each portfolio.

Table 3

Classification of sectors in portfolios

No	Field of activity	Portfolio Code	Number of issuers
1	Financial investment companies - SIF	**PO1** - SIF	**5** (SIF1, SIF2, SIF3, SIF4, SIF5)
2	Banks and SSIFs	**PO2** - banks	**4** (BRD, TLV, BCC, BRK)
3	Petroleum and similar activities	**PO3** - petro	**5** (OIL, PEI, SNP, PTR, RRC)
4	Chemical industry	**PO4** - chem	**7** (AMO, ATB, AZO, BIO, OLT, PCL, STZ)
5	Industrial equipment	**PO5** - equip	**8** (APC, ARM, ART, CMP, ECT, EPT, TBM, UAM)
6	Other industries	**PO6** - other	**9** (BRM, EFO, EXC, FLA, IMP, PPL, SOCP, SRT, VNC)

Secondly, the optimization process of each sectoral portfolio generates the following observations:

- The more diversified a portfolio (for example P04, P05, PO6), the bigger the number og efficient portfolios identified at the border; in consequence, investors have more options in selecting the proper portfolios for a certain risk level;
- Optimization of PO1 and PO2 provided results at least surprising in terms of low return-risk ratio values, compared to PO5 or P06 (Table 4).

Table 4

Characteristics of efficient portfolios (PVMA, Renta-max and Max (return-risk)

No.	Field of activity	Yearly return (%)	Risk (%)	Yearly return (%)	Risk (%)	Maximum value of return-risc ratio
		PVMA (minimum absolute variance portfolio)		Maximum return portfolio (Renta-max)		
1	**PO1** - SIF	46.77	32.74	46.77	32.74	**1.43**
2	**PO2** - banks	19.62	22.41	46.76	24.84	**1.88**
3	**PO3** - petro	25.90	25.08	99.43	30.28	3.28
4	**PO4** - chem	46.75	20.38	54.47	20.69	2.63
5	**PO5** - equip	43.07	21.63	99.43	25.2	**3.95**
6	**PO6** - other	35.94	17.18	84.72	20.7	**4.09**

The maximum values of the return-risk ratio prove right the sectoral classification in six distinct portfolios, highlighting the fact that the best return-risk results are provided by other economic sectors (PO5 and PO6), despite the dominance of the financial sector companies on the stock exchange.

2.2.Selecting the aggregated portfolio.

Returning to the previous results, we intended to develop an aggregated portfolio consisting of the six optimized portfolios based on the *maximization of return-risk ratio criterion.* The data from the previous stage (the set of return-risk values corresponding to each optimized portfolio) were used in calculating new weights for the six portfolios from the aggregated portfolio. The results of the third optimization stage are presented in the table below (Table 5):

Table 5

Return and risk of the aggregated portfolio

No.	PO1	PO2	PO3	PO4	PO5	PO6	Risk / year(%)	Annual return(%)
1	0.26	0.31	-0.38	1.01	-0.36	0.16	**29.5**	**102.6**
2	0.24	0.31	-0.36	0.98	-0.34	0.17	**28.5**	**105.3**
3	0.22	0.31	-0.34	0.95	-0.31	0.17	**27.5**	**108**
4	0.2	0.32	-0.32	0.91	-0.29	0.18	**26.6**	**110.8**
5	0.18	0.32	-0.3	0.88	-0.27	0.19	**25.7**	**113.7**
6	0.17	0.32	-0.28	0.85	-0.24	0.19	**24.8**	**116.6**
7	0.15	0.32	-0.26	0.82	-0.22	0.2	**24**	**119.6**
8	0.13	0.32	-0.24	0.79	-0.2	0.2	**23.2**	**122.7**
9	0.11	0.32	-0.22	0.75	-0.17	0.21	**22.4**	**125.9**
10	0.09	0.32	-0.2	0.72	-0.15	0.21	**21.7**	**129.2**
11	0.07	0.32	-0.18	0.69	-0.13	0.22	**21**	**132.5**
12	0.06	0.33	-0.16	0.66	-0.1	0.22	**20.4**	**135.9**
13	0.04	0.33	-0.14	0.63	-0.08	0.23	**19.8**	**139.5**
14	0.02	0.33	-0.12	0.59	-0.05	0.23	**19.3**	**143.1**
15	0	0.33	-0.1	0.56	-0.03	0.24	**18.9**	**146.8**
16	-0.02	0.33	-0.08	0.53	-0.01	0.24	**18.6**	**150.6**
17	-0.04	0.33	-0.06	0.5	0.02	0.25	**18.3**	**154.5**
18	-0.06	0.33	-0.04	0.47	0.04	0.25	**18.1**	**158.5**
19	-0.07	0.33	-0.02	0.43	0.06	0.26	**18**	**162.6**
20	**-0.09**	**0.33**	**0**	**0.4**	**0.09**	**0.26**	**17.9**	**166.8**

PVMA

No	PO1	PO2	PO3	PO4	PO5	PO6	Risk/ year (%)	Annual return (%)
21	-0.11	0.34	0.02	0.37	0.11	0.27	**18**	**171.1**
22	-0.13	0.34	0.04	0.34	0.13	0.28	**18.1**	**175.5**
23	-0.15	0.34	0.06	0.31	0.16	0.28	**18.3**	**180.1**
24	-0.17	0.34	0.08	0.27	0.18	0.29	**18.6**	**184.7**
25	-0.18	0.34	0.1	0.24	0.21	0.29	**19**	**189.5**
26	-0.2	0.34	0.12	0.21	0.23	0.3	**19.5**	**194.4**
27	-0.22	0.34	0.15	0.18	0.25	0.3	**20**	**199.4**
28	-0.24	0.34	0.17	0.15	0.28	0.31	**20.6**	**204.6**
29	-0.26	0.35	0.19	0.11	0.3	0.31	**21.2**	**209.9**
30	-0.28	0.35	0.21	0.08	0.32	0.32	**21.9**	**215.3**
31	-0.29	0.35	0.23	0.05	0.35	0.32	**22.6**	**220.9**
32	-0.31	0.35	0.25	0.02	0.37	0.33	**23.4**	**226.6**
33	-0.33	0.35	0.27	-0.01	0.39	0.33	**24.2**	**232.4**
34	-0.35	0.35	0.29	-0.05	0.42	0.34	**25.1**	**238.4**
35	-0.37	0.35	0.31	-0.08	0.44	0.34	**25.9**	**244.6**
36	-0.39	0.35	0.33	-0.11	0.47	0.35	**26.9**	**250.9**
37	-0.4	0.35	0.35	-0.14	0.49	0.35	**27.8**	**257.4**
38	-0.42	0.36	0.37	-0.17	0.51	0.36	**28.8**	**264**
39	-0.44	0.36	0.39	-0.21	0.54	0.36	**29.7**	**270.9**
40	-0.46	0.36	0.41	-0.24	0.56	0.37	**30.7**	**277.9**

Based on the analysis of the data above, we can make the following observation: *the negative weight of the first portfolio implies, at this stage, that PO1 must be separately considered.* It is known that, during the period of time considered, SIFs shares traded represent more than 50% of tha total traded value of the stock exchange. However, thay seem to be ineligible in selecting an efficient portfolio, in an optimization process. This indicates that, although the yields provided are constant and satisfctory, the associated risk (32.74%) is higher compared to other portfolios analyzed. These issues lead to the conclusion that, as long as the issuers from the financial field (SIF and banks) maintain their position in the market, treating the problem of efficient management of such a portfolio consists, in our opinion, in treating separately this category, compared with the rest of the economic sectors represented at the Bucharest Stock Exchange. This can be a starting point in developing an investment strategy. A part of the investment amount is assigned to SIF shares purchases, the rest being allocated to the other five portfolios, with corresponding weights for the risk profile of the investor. These considerations leads us to the final stage of the optimization process, considering only PO2, PO3, PO4, PO5 and PO6 portfolios. The results are selectively, starting with the minimum absolute variance portfolio (PVMA), to the maximum return portfolio (Table 6):

Table 6

Efficient portfolios on the border of the aggregated portfolio

	Po2	Po3	Po4	Po5	Po6	Annual risk	Annual return		Max Return/ Risk
1	0.28	0.00	0.40	0.07	0.26	18.05	62.57	pvma	3.47
2	0.27	0.01	0.36	0.09	0.27	18.08	66.78		3.69
3	0.26	0.03	0.31	0.12	0.27	18.20	71.09		3.91
4	0.25	0.06	0.27	0.14	0.28	18.41	75.52		4.10
5	0.24	0.08	0.23	0.17	0.28	18.72	80.06		4.28
6	0.23	0.10	0.19	0.19	0.29	19.11	84.72		4.43
7	0.21	0.12	0.15	0.22	0.30	19.59	89.50		**4.57**
8	0.20	0.15	0.11	0.24	0.30	20.14	94.40		4.69
9	0.19	0.17	0.07	0.27	0.31	20.76	99.43		4.79
10	0.18	0.19	0.02	0.29	0.31	21.44	104.58	re max	4.88

This last run provides at least a reliable solution in terms of the return/risk ratio (for example, 4.57), value that is higher than any values previously determined on the basis of this criterion, for each portfolio separately. The results of the implemented optimization method reveal the splitting effect of the market in two major categories. This method revealed the opportunity for higher performance that would be obtained by investing using the weights determined through the aggregated portfolio optimization.

3. Testing the applicability of valuation methods in assessing the aggregated portfolio performance

In order to assess the performance of the aggregated portfolio, we decided to use methods based on rates (Sharpe, Treynor, Alfa-Jensen) and the graphic method, during 01.01.2006 and 31.12.2007.

3.1.The assessment methodolgy using rates methods

- We took into account the optimization results for the five portfolios (PO2, PO3, PO4, PO5 and PO6), in terms of weights corresponding to the efficient portfolio that meets the maximum return/risk criterion (Table 6);
- We considered an investment amount of X, at the beginning of a 498 days period, using optimization determined weights, and we calculated the daily value of each of the five portfolios, five new daily sets of return values respectively, as a result of market movement;
- Based on this set of yields, we calculated the characteristic measures: daily average yield, standard deviation and β coefficient, determined using the BET-C index evolution.;
- The resulting data were used as input data for the aggregated portfolio;
- On the efficiency border of the aggregated portfolio, we selected three efficient portfolios: the minimum absolute variance portfolio (PVMA), the maximum return portfolio (Renta-max) and the maximum yield-risk ratio portfolio (Renta/Risk max);
- Using the weights calculated for the three efficient portfolios, we determined the weighted average for characteristic measures (return, standard deviation and β);
- The obtained results were considered as input data for calculating Sharpe rate, Treynor rate and Alfa-Jensen rate;
- zero-risk rate is determined through a weighted average of the discount treasury bonds interest rate, issued during 2007, at 6.35% per year.

Following the stages described above, we obtained the following results:

Weights of POi portfolios are determined, the efficient portfolio having the maximum return-risk ratio:

Table 7

Selected securities weights in optimized portfolios

Portfolio	Risk	Daily average return	Weights										Risk/year [%]	Return / year[%]	max [return /Risk]
P02	1.55	0.15	BCC	BRD	BRK	TLV						BANCI	24.84	46.76	1.88
			0.0%	20.1%	35.3%	44.5%									
P03	1.89	0.27	OIL	PEI	PTR	RRC	SNP					PETRO	30.28	99.43	3.28
			25.9%	4.8%	35.1%	0.5%	33.7%								
P04	1.29	0.17	AMO	ATB	AZO	BIO	OLT	PCL	STZ			CHIM	20.69	54.47	2.63
			8.0%	30.8%	0.0%	23.5%	11.7%	18.4%	7.6%						
P05	1.57	0.27	APC	ARM	ART	CMP	ECT	EPT	TBM	UAM		ECHIP	25.20	99.43	3.95
			9.2%	3.1%	30.5%	0.0%	5.9%	9.0%	34.4%	8.3%					
P06	1.29	0.24	BRM	EFO	EXC	FLA	IMP	PPL	SOCP	SRT	VNC	ALTE	20.70	84.72	4.09
			7.5%	17.4%	23.0%	3.8%	17.6%	16.9%	0.0%	1.4%	12.4%				

The information presented in the table above provide a synthetic aggregation of the data generated by the optimization process, being considered the portfolio features that meet the maximum return-risk criterion. The optimized portfolios have been reconsidered in the same price and time framework. We determined new series of daily returns and new features of the five portfolios and BET-C index, based on portfolio values (Table 8).

Table 8

Portfolios daily average return and risk (σ and β)

	Bet_C	PO2	PO3	PO4	PO5	PO6
Average return	0.11	0.19	0.37	0.15	0.35	0.22
Standard deviation	1.25	1.49	2.50	1.36	2.20	1.69
Beta coefficient	1	0.96	1.03	0.66	0.69	0.52

From the efficient border of the aggregated portfolio, three efficient portfolios have been selected (PVMA, Renta-max and re/ri-max), with the corresponding weights (PO2, PO3, PO4, PO5 and PO6) (Table 9).

Table 9

Portfolios weights POi (i= 1...5) from the aggregated portfolio

	Weights [%]				
PVMA	28.27	0.00	39.64	6.84	26.15
Renta_max	17.90	19.07	2.43	29.19	31.41
re/ri-max	21.35	12.39	14.85	21.74	29.66

Based on the weights in the above table, indices, average daily return and risk (σ and β) have been recalculated, for the selected efficient portfolios (Table 10).

Table 10

Portfolios daily average return and risk (σ and β)

Aggregated portfolio	Average return	Standard deviation	Beta coefficient
PVMA	0.1934	1.128	0.717
Renta_max	0.2800	1.340	0.752
re/ri-max	0.2500	1.224	0.737

Further, rates values were determined in order to show the performance of the three selected efficient portfolios, from the aggregated portfolio (Table 11).

Table 11

Performance valuation rates of efficient portfolios

Aggregated portfolio	Sharpe Rate	Treynor Rate	Jensen-Alfa Rate
PVMA	0.150	0.236	0.108
Renta_max	0.191	0.340	0.191
re/ri-max	0.185	0.306	0.163

The data presented above show that, in terms of hierarchy of portfolios, Sharpe, Treynor and Jensen-Alfa rates have the highest values for the maximum return portfolio (the second portfolio) as the best performing portfolio from the aggregated portfolio. In second place comes the portfolio which meets the maximization criterion of return-risc ratio.

3.2. Estimating aggregated portfolio performance using the graphic method

Charts provide a clear image of performance, by comparing the three selected portfolios to the BET-C index evolution. The ranking of the efficient portfolios is similar in both charts (see Figure 2). The spread or the profitability surplus of each portfolio, compared to BET-C return rate (0.11%), equals individual portfolio performance if the investment process has started at the beginning of the time period analyzed, according to the data generated by Markowitz optimization model.

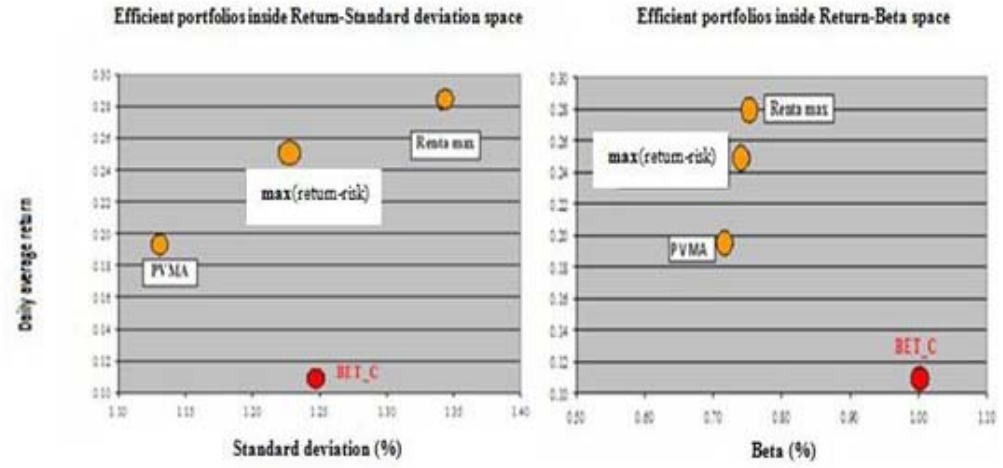

Figure 2. *Performance of aggregated portfolio function of σ and β*

4. Conclusions

The usefulness of performance valuation ratios derives in ranking investment opportunities, representing a tool that facilitates optimal investment decision taking. Considering the output, we suggest that a mix of Markowitz optimization model, completed by a continuous observation of profitability and risk statistics evolution for the studied portfolios, and the implementation of other optimization methods represents a feasible solution for an efficient portfolio management.

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RECOMMENDATIONS FOR THE IMPROVEMENT OF THE ANTI-MONEY LAUNDERING REGIME[*]

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Abstract. *This paper studies the relationship between money laundering and tax evasion, as well as the impediments in estimating the global and national magnitude of money laundering. Based on the results of our study, we formulate a series of recommendations for the improvement of the anti-money laundering (AML) regime.*

Keywords: money laundering; tax evasion; underground economy; predicate offence.

JEL Codes: E26, H26, K42.
REL Code: 13I.

1. Introduction

Setting out from the previous research in this area and from the results of the research project entitled "Financial Crime and the Securization of Banking Circuits in order to Prevent and Fight against Money Laundering", we formulate a series of recommendations for the improvement of the AML regime in the following domains:

- In Section 2 we analyze the relationship between money laundering and tax evasion and its implications on the AML regime of a country;
- In Section 3 we analyze the main impediments in estimating the size of money laundering and we offer suggestions for overcoming them.

Section 4 presents the conclusions of this paper.

2. Money laundering and tax evasion

The results of a poll(1), carried on between September and December 2007 with the participation of 96 professionals from the Romanian financial market, show that 72.9% respondents considered that the main goal of the AML institutions Is to fight against tax evasion. Setting out from this perception we raise the following question: Is there any connection between money laundering and tax evasion? The answer is not an easy one, taking into account that this is a highly debated topic. Therefore, we commence by presenting an overview of the opinions expressed by international institutions and experts on this matter.

The Financial Action Task Force (FATF) stipulates in the first of The Forty Recommendations (FATF, 2004, pp. 5) that "countries should apply the crime of money laundering to all serious offences, with a view to includ the widest range of predicate offences"(2). As a minimum standard, countries should "include a range of offences within each of the designated categories of offences". Tax evasion is not to be found among the

[*] This work was supported by CNCSIS-UEFISCSU, research project PN II – IDEI, code 822, financing contract 347/2007.

designated categories of offences, so, the FATF Recommendations do not offer a clear answer to our question. However, although the designated categories of offences do not comprise tax evasion, some may argue that it is covered by the provision that requires the inclusion of "the widest range of predicate offences". After all, the FATF Recommendations stipulate that the designated categories of offences should be regarded only as a minimum standard.

David Winch, an expert in litigation support and forensic accounting(3), states that tax evasion should be considered a predicate offence of money laundering because, in his opinion, tax evasion always involves money laundering. Thus, "when a person "saves" tax by evasion he commits a criminal offence by making a false tax return and a money laundering offence by failing to pay the full amount of tax which is properly due" (Winch, 2006, p. 1). In this view, there is a strong causality rapport between tax evasion and money laundering so the two crimes cannot be separated.

On the other hand, some experts consider that the existence of a relationship between tax evasion and money laundering is, at least, questionable. Three main arguments support their point of view(4):

- Tax offences are not criminalized in every jurisdiction because some countries do not raise, for example, income tax. Therefore, in such a jurisdiction, income tax evasion cannot be a predicate offence of money laundering because it is not a crime;
- The FATF Recommendations emphasize the importance of international cooperation and require the competent authorities to "take expeditious action in response to requests by foreign countries to identify, freeze, seize and confiscate property laundered, proceeds from money laundering or predicate offences". If tax evasion were a predicate offence, then the implementation of FATF Recommendations regarding international cooperation might enter in conflict with the principles of international law which state that a country cannot enforce the tax laws of another country;
- By definition, money laundering refers to funds of illegal origin, proceeds of crime. Therefore, in the case of tax evasion, only the tax evaded from payment (which represents proceeds from tax evasion) can be laundered. But, in order to avoid the payment of the respective tax, the whole amount of funds that are subject to taxation will enter the laundering process, although they are of legal origin. As a consequence, it is difficult to establish if tax evasion is a predicate offence because the definition of money laundering is not entirely met.

Finally, the answer to our question depends on the position of the AML laws of a country and on the interpretation of those laws by the judiciary authority. The predicate offences of money laundering specified in the legislation differ from one country to another. For example, "under British law both official corruption and tax evasion, even when committed abroad, are specified unlawful activities, while under US law they are not" (IMF, 2001, p. 21). The law of many countries, including the members of the European Union, stipulates that the crime of money laundering applies to all serious offences(5). In such cases, it is almost certain that tax evasion will fall within the catchall provision even if it is not explicitly mentioned in the legislation as a predicate crime of money laundering(4).

Table 1 presents the estimated size of money laundering and tax evasion in Romania, Bulgaria and The United Kingdom for the year 2008. The estimated levels for money laundering are taken from Rece (2008), while those for tax evasion come from a report realized by Associazione Contribuenti Italiani and Klrs Network of Business Ethics(6).

Table 1

The estimated size of money laundering and tax evasion in Romania, Bulgaria and The United Kingdom for the year 2008

Country	Romania	Bulgaria	United Kingdom
Money Laundering (%GDP)	3.1	2.9	1.6
Tax Evasion (%GDP)	18	~18	6

The estimations presented above emphasize the importance of the relationship between tax evasion and money laundering. In his study, Rece (2008) does not include tax evasion among the predicate offences of money laundering. Consequently, the following question rises: if tax evasion were a predicate offence, how much would it affect the estimated size of money laundering? Taking into account the considerable magnitude of tax evasion, an important increase in the estimated levels of money laundering would be expected. Moreover, if we considered the hypothesis formulated by Winch (2006), which states that the funds resulting from tax evasion are laundered entirely, we would have to sum the two indicators in Table 1 in order to obtain the estimated size of money laundering.

In view of the arguments presented in this section we can formulate the following recommendations for the improvement of the AML regime:

- Every country should elaborate clear regulations regarding the relationship between tax evasion and money laundering. Countries cannot ignore this issue, taking into account the considerable magnitude of tax evasion. On the other hand, unclear regulations, such as the "all crimes legislations", make room for subjective interpretations of the law by the judiciary authority;
- Countries should assume a balanced position in regulating the relationship between tax evasion and money laundering. Thus, the role of tax evasion in generating illegitimate funds should not be ignored or minimized. On the other hand, the AML institutions should not be transformed into fiscal agencies. We recommend the elaboration of a legal framework for the collaboration between fiscal authorities and AML institutions that allows exchange of information and mutual assistance;
- There should be defined a set of international standards regulating this area and every country should implement them. The presence of international standards will enhance international cooperation between countries, which is a key element of the FATF Recommendations. Also, there should be made pressures on countries that refuse to implement the international standards because tax evasion and money laundering networks usually migrate to jurisdictions with lax regulations;
- If tax evasion is included among the predicate offences of money laundering, and taking into account the considerable magnitude of this phenomenon, we can expect that fiscal policy will have a significant impact on money laundering. Consequently, we recommend that AML policies and programs should be correlated with fiscal policy measures.

3. Impediments in estimating the size of money laundering

The debate concerning the estimation of the size of money laundering starts with the following question: Is it necessary to obtain a realistic estimation of the size of money laundering? Stanley Morris, former chairman of FATF Working Group on Statistics and Methods, identifies the following arguments that stand for a quantitative approach of money laundering (Walker, 1998):

- Allows a better understanding of the magnitude of this phenomenon and of the importance that should be given to AML policies and programs;
- Helps determining the effectiveness of the AML efforts "by providing a baseline and a scale for measurement and enabling evaluation of particular programs or approaches";

- Allows a better understanding of the macroeconomic effects of money laundering, especially on financial institutions;
- Allows a better understanding of money laundering because the estimation process leads to a rigorous examination of money laundering's components and of the relationships between them.

Despite all these arguments, the same Stanley Morris concludes that there is no base for the accurate measurement of money laundering. On the other hand, The International Monetary Fund (IMF) draws attention to the fact that financial crime activities are concealed, making their direct observation impossible. Therefore, IMF concludes that "an adequate measure of financial system abuse remains illusive" (IMF, 2001, p. 10). The World Bank (WB) supports the opinions expressed above, adding that the efforts must not be oriented towards measuring the size of illegal activities, but towards their eradication (WB, 2002, p. 56).

A second question brings into discussion the core of the problem: Is it possible to obtain a realistic estimation of the size of money laundering? Taking into account the arguments that support a quantitative approach of money laundering, FATF set out to establish a methodology for estimating the size of money laundering worldwide and within its member states. Unfortunately, the quest led to a dead-end, so, FATF concluded that money laundering is too complex to be accurately measured. Walker identified the following causes of the FATF's failure(7):

- Focus on drug traffic without taking into account other predicate offences;
- Focus on certain categories of drugs only (cocaine, marijuana, heroin);
- Focus on a limited number of countries, especially the rich countries from the North-Atlantic area;
- Focus on the statistical "purity" of the results. Walker considers that the most important characteristic of an estimation is its credibility, not its accuracy;
- FATF didn't take into account the circuit of "dirty" money in the economy.

The experts from IMF divide the existing methodologies for estimating the size of money laundering into two categories: approaches based on macroeconomic indicators and approaches based on information collected by law and tax enforcement agencies. The macroeconomic approach goes far beyond the boundaries of money laundering trying to assess the magnitude of the entire underground economy. Therefore, this approach overestimates the size of money laundering to an indeterminate extent. The other approach uses information collected in the course of law enforcement concerning the number of prosecuted cases and their total value, as well as the incomes and expenditures of criminal activities. "Given that law enforcement based estimates use actual data on reported crimes, and that reported crimes are a subset of all crimes, the real magnitude of money laundering is significantly underestimated". In conclusion, both approaches have problems and neither leads to satisfactory results (IMF, 2001, pp. 10-11).

Walker (1998) disagrees with the "gloomy" opinion expressed by the international institutions and, as a solution, proposes a logical model which, setting out from statistical data on criminality levels, estimates the amount of "dirty" money generated by every country in the world. Then, using socio-economic indicators, the model establishes the proportion in which the "dirty" money will be laundered and also the countries where this process will take place. Finally, the model estimates the magnitude of money laundering worldwide, as well as the contribution of each country to this global problem(8). In order to illustrate the results of Walker's model, Table 2 presents the estimated size of money laundering in eight countries for the year 1998(9). Considering that the underground economy relies on money laundering to offer a legal appearance to its profits, we expect a strong connection between the sizes of the two phenomena. This is why we included in Table 2 the estimated size of the underground

economy, for the respective countries, determined by Schneider (2002) as an average value for the years 1997/98, using the currency demand method (10).

Table 2

The estimated size of money laundering and underground economy in eight countries for the year 1998

Country	Canada	France	Germany	Italy	Japan	United Kingdom	Netherlands	Spain
Money Laundering (%GDP)	8.6	6.72	4.98	9.32	0.43	3.71	3.41	6.5
Underground Economy (%GDP)	16.2	14.9	14.9	27.3	11.1	13	13.5	23.1

The values presented above indicate a significant difference between the estimated sizes for the two phenomena. Rece and Bourbonnais (2009) show that, in essence, the underground economy is represented through the amount of "dirty" money generated by illegal activities. According to FATF estimations, between 50% and 70% of these funds will enter into the laundering process (IMF, 2001, p. 10). As a consequence, the differences between the estimated sizes of money laundering and underground economy should be much smaller. We can identify the following causes of the obtained results:

- The size of the two phenomena was estimated separately, using different methodologies, which affects the comparability of the results. Moreover, considering that there are many methodologies for estimating the magnitude of the underground economy, and the fact they lead to significantly different results, it is quite difficult to correlate the size of the underground economy with the one of money laundering;
- Walker's model may underestimate the size of money laundering because it uses data on reported crimes, which are a subset of all crimes. Also, the model takes into account only 11 types of predicate offences, while the FATF Recommendations mention 20 designated categories of offences, as a minimum standard (FATF, 2004, p. 16).

In view of the impediments in estimating the size of money laundering, presented in this section, we can formulate the following recommendations:

- Countries and international institutions should continue their efforts towards estimating the size of money laundering at a national, regional and global level, these efforts being supported by the arguments presented in the beginning of this section. After all, the reasons against a quantitative approach of money laundering refer only to the serious impediments involved by such a process, but they do not question its utility. Moreover, the fact that even FATF tried to elaborate an estimation methodology, although it failed, confirms the need for quantitative measures of money laundering;
- There should be defined an international estimation methodology to be used by every country in the world, thus, assuring the comparability and homogeneity of results and allowing to obtain a realistic estimate of the global magnitude of money laundering. Instead of national regulations, which can vary significantly from one country to another, we recommend to use the FATF Recommendations as a reference standard. Consequently, countries that haven't fully implemented the FATF Recommendations will not be able to underestimate the size of money laundering by invoking their domestic regulations. Also, in this way, the impediments concerning the fact that predicate offences vary among countries will be avoided. On the other hand, Walker draws attention to the fact that money laundering flows have an international dimension which requires a global approach. A local or regional estimation is not possible, that being, in Walker's opinion, one of the reasons for the FATF's failure[(7)];

- The strong relationship between money laundering and the underground economy supports the elaboration of a common methodology for estimating the size of the two phenomena. Such a methodology will emphasize the intimate connections between money laundering and the underground economy, facilitating the elaboration of adequate programs for their eradication. Moreover, detecting the intimate connections between the two phenomena makes it possible to run tests and simulations in order to select the most effective measures for fighting against money laundering and the underground economy;
- The estimation methodology should take into account all the designated categories of offences from the FATF Recommendations. Although focusing on an incomplete range of predicate offences simplifies the assessment process, it also underestimates the magnitude of money laundering;
- It is impossible to obtain a precise assessment of the magnitude of money laundering, this aspect being emphasized by the representatives of FATF and IMF. However, this is not an excuse for abandoning the quantitative approach of this phenomenon. Instead, we should trade statistical precision for realistic and credible estimations(7).

4. Conclusions

The first half of the paper deals with the relationship between tax evasion and money laundering and its impact on the AML regime. Although the opinions regarding this subject are generally conflicting, the dimensions of tax evasion are too large to ignore its impact on money laundering. Therefore, we recommend the elaboration of a legal framework for the collaboration between fiscal authorities and AML institutions, as well as the correlation of AML programs with fiscal policy measures.

In the second half of the paper, we studied the opportunity of estimating the national and global magnitude of money laundering. Although the quantitative approach of money laundering is particularly difficult, due to the concealed character of this phenomenon, it offers a baseline and a scale for evaluating the effectiveness of the AML programs. Given that the international institutions haven't designed an estimation methodology yet, the model developed by Walker (1998) may be a starting point for future research in this area. The main advantage of this model is that it can be improved by using more complex and realistic hypotheses.

Notes

(1) The poll was developed within the research project entitled "Financial Crime and the Securization of Banking Circuits in order to Prevent and Fight against Money Laundering", financed by CNCSIS-UEFISCSU. The full results of the poll can be found in the research report for the year 2007, available at http://www.crimafinanciara.ase.ro/.

(2) IMF defines predicate offences as offences whose proceeds are laundered.

(3) Detailed information regarding the works and activity of David Winch are available at http://www.accountingevidence.com/about.cfm.

(4) "Money Laundering as Tax Evasion", available at http://people.exeter.ac.uk/watupman/undergrad/ron/tax%20evasion.htm.

(5) Known as "all crimes legislations".

(6) More details at http://economie.hotnews.ro/stiri-finante_banci-4387436-romania-locul-doi-topul-evaziunii-fiscale-din.htm.

(7) "Estimating the Illicit Flows – Asking the Right Questions", presentation available at http://www.johnwalkercrimetrendsanalysis.com.au/toc.htm.

(8) The model is presented in detail within the work entitled "Modeling Global Money Laundering Flows – Some Findings", available at http://www.johnwalkercrimetrendsanalysis.com.au/ML%20method.htm.

(9) Walker's results are presented in absolute values. In order to facilitate comparability with the size of the underground economy, in Table 2 we calculated the size of money laundering as percentage of GDP.

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SECTION I

INSURANCE

THE METHOD OF STANDARD COSTING IN PUBLIC MANAGEMENT, A POSSIBLE AND NECESSARY OPTION?

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Abstract. *The present article puts forward a work procedure that would apply the principles of the method of standard costing in order to validate the proposals of credit accountants in the process of substantiating and drawing up budget projects at different levels of the central and public administration. The authors plead for the application of a distinct procedure as compared to the one applied at microeconomic level in order to establish "the minimal standard budget" of a public institution.*

Keywords: budget; standard costing; minimal standard budget.

JEL Codes: H61, H68.

General background

The financial and economic structures in Romania have become more unbalanced and fragile owing to the world crises and rage with virulence influencing negatively the development of the country and its standard of living. Within this framework, contradictory statements of decision makers at the highest level have generated mistrust and an inappropriate reaction of the business environment and the people.

As a result there was a sudden transition from an euphoric state, regarding the economic performance of Romania and the possibility to strengthen it, to utter pessimism and despondency reflected in budget deficits which constitute the general consolidated budget.

By trying to identify solutions which would hold under control the budget deficits, in order to diminish the current and the predicted values, costs have been cut dramatically at central and public administration level.

During the last 15 years the public administration has undergone restructuration in view to the accession to the EU and integration in the Euro-Atlantic structures. In a manner that unfortunately has become the leading guideline of political decision makers in Romania, decisions were made on a short term basis and the objectives and the public interest were heavily contaminated by group interests irrelevant for the progress of the Romanian society.

Once the crises perceived and acknowledged by the virulent chorus of unprofessional discussions, full of accusations and blames, The Ministry of Public Finances has opted to use a recognized instrument at microeconomic level – the method of standard costing – as a heal-all solution to ensure the amount of budget spending.

Thus, in the Government Programe from 2009 to 2012, approved by the Romanian Parliament, amendments to the Local Public Finance Law have been provided for, so that spending on the operation and development of public services should be financed by local authorities, as well as measures to deduct the amount of money needed for financing the decentralized services, based on the standard costing calculation, at the level of the beneficiary or any other entity, a solution that has been particularly adopted in education, social services, health and the maintenance of public roads.

This direction is also an option of applying standard costing, within the established parameters and guidelines, to the firms producing goods and services, in order to rigorously substantiate and monitor their spending. At the same time, by the acquisition of material resources through public bids maximum values can be set, which would offer objective guide marks in choosing the best offer. This is not our main line of research in this paper. Our main objective is to demonstrate the possibility to apply the standard costing method in public management and to analyze its applicability to the central public administration in drawing up the fundamental financial plan –the state budget- for the public institutions.

Standard costing at microeconomic level

The standard costing method was elaborated in the USA at the beginning of the XX-ieth century and was steadily developed and expanded due to its indisputable advantages for the management of the firms.
According to the definitions present in the specialized economic literature, the standards represent amounts and values, established scientifically, both on the basis of data from previous periods of time as well as of predicted elements, adjusted to the course of action of the analyzed activities, mainly applicable to determine the production costs of the economic agents.
These estimated amounts as minimal expenditure values had different names, such as: standard costing, normative costing, estimated costs, preliminary costs or budgetary costs. Set generally by special management accounting operations, standard costing is a necessary management instrument, especially for the identification and analysis of the deviation from the fixed values, in order to guide the course of actions and to avoid those behaviors and causes that would lead to the increase of production costs.
At a microeconomic level, the homogeneity and the repetitive operations and activities in the production process has led to applying the respective method on a large scale. These characteristics have become main factors in the computarization of the work procedures in accounting and management.

What are the advantages of applying this method to a macroeconomic level?

The possibility of applying specific work procedures and algorithms of this method to a macroeconomic level, in making projections and fixing values of the state budget indicators (index), are an important stage in budgetary planning.
As we know, the state budget should reflect, through its indicators, on one hand, the necessary financial resources needed in order to implement the governmental program in the near future and, on the other hand, how these resources can be covered in ordinary economic and financial circumstances. Each of the methods used in establishing the value of the budget indicators in current management accounting has advantages and shortcomings, and the selection of one particular method will be determined by the macroeconomic environment, economic and financial restrictions, the present legal system, tradition, period of time and last but not least, by the efficiency, cost and appropriateness of the results.
In Romania, since 2002 the Law regarding public financing (footnote 1 The Law regarding Public Finances nr. 500/2002, with further changes and addenda) has introduced financing based on programs, budget plans being drawn up based on:

i. Sector policies and strategies, of priorities established in budget proposals, submitted by the main credit release authorities.
ii. Detailed expenditure proposals.
iii. Programs drawn up by the main credit authorities with the aim of financing certain actions or a set of actions, with precise objectives and efficiency and result indicators.

The idea put forward by this study is that during the elaboration stage of the budget program, using some procedures and methodologies inspired by the classical method of standard costing, could have a positive impact on the professionalization and level of responsibility of decision makers in the consultation process between public institutions and the state authority at managerial level.
At the same time the use of procedures and methodologies inspired by the classical method of standard costing can contribute to the harmonization of interests, options and behavior of the factors involved in drawing up the state budget, who can display the following characteristics:

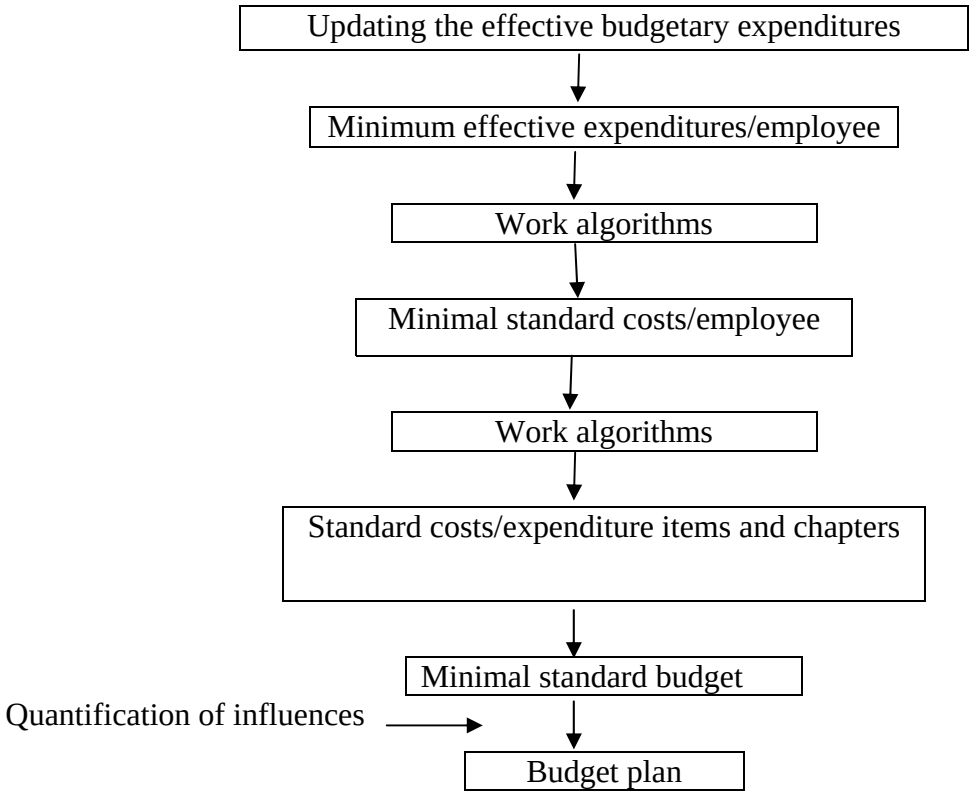
Entity	Behaviour	Observations
Main credit release authority	Through the submitted budget proposals they can try to expand the activities of the entities they represent. Motivation: Prestige enhancement.	Bureaucratic type behaviour. Main interest in the budget's function of allocation.
Members of the Parliament	The wish to be noticed by those who elected them will be materialised in proposals of amendments. These proposals alter the ratios and correlations elaborated by the government and can lead to change the level of public spending in certain domains.	The attitude depends on whether they belong to the political Parties which are in power or the opposition Parties, but also on the period of the election cycle.
Interest groups	They are lobbying for the increase of public spending and to alter their structure and diminish different categories of mandatory drawings.	Actions which usually lack transparency and generate unbalanced states.
Citizens	An indirect influence can be seen before elections in the way MPs belonging to political groups would behave regardless of their position on the political scene.	They do not play a direct role in budget planning.

The entities presented above act differently and use specific procedures and instruments, but also different layers of power. Having specific objectives, their actions can become contradictory, and even potentially conflicting, thus consensus can be reached only with difficulty and painstakingly. The choice of the solution is quite often made by being imposed by the entity that is in power, the government has the greatest influence over the budgeting process, through the Ministry of Public Finances, based on specific competencies.

In the current macroeconomic environment, which would impose the decrease of the cost of allotted resources in order to achieve the estimated results of actions, by still maintaining their appropriate quality, the methods currently used to fix the value of budget indicators do not always lead to the expected results, mainly because of some risk and uncertainty factors which cannot be always predicted. We consider that in drawing up the budget the set of minimal standard costs would be important, determined by identifying and considering indicators, such as: the minimal costs per employee, historically registered, which together with other specific indicators will constitute the minimal budget standard.
From this perspective, though costs are indirectly determined and not based on the previous calculation characteristic for each item of expenditures, they are reasonably certain, because they represent expenditures, officially acknowledged to have been made previously. To determine their level is an easy task.
Thus, a model of determining standard costs/employee in the budget of a public institution, could be designed on the basis of an analysis of the budgeting process over the last five years.
To ensure the comparison, the data regarding the annual budget plan of the public institutions analyses will be updated with the annual trends of the main macroeconomic indicators during

the set period. Based on the updated information the costs per employee are determined, registered every year and indicators such as minimal standard costs/employee are established, on items of expenditure and on the total budget, by selecting the smallest identified costs on each expenditure item and employee.
Through the aggregation of costs/employee, identified by expenditure items and chapters, according to the budgetary classification and by multiplying them with the number of employees proposed to be approved for the year when the standard costs are determined, a budget determined by minimum values would result, absolutely necessary to properly carry out the activities of the institution, which could be considered as a standard in setting the budget for the next year (minimum standard budget). Possible influences from new tasks, projects or provisional programs to intervene in drawing up the budget or by transferring units, actions or tasks from one public institution to another should be analyzed separately and added or subtracted, from case to case, to the minimum costs previously determined.

The flowchart regarding the procedure of setting the minimal standard budget is:



The advantages of this method

By choosing this method the advantages offered by other methods used in budgetary planning will be cumulated. Thus both the minimal standard method and the automated method use precise figures, which represent achievements of a previous period. At the same time, the uncertainty for which the classical method is blamed is highly diminished, by taking into account not only one completed year, but several years. Because of the existent automation possibilities several working hypotheses can be designed, according to the number of years that constitute the period of reference.
We consider that the method of minimal standard has borrowed from the ”increase/decrease method“ the use of information provided by budgetary processes previous to the year/years

for which the budget plan is drawn up. At the same time, the statistic analysis of this classical method can be used.

Procedures and working techniques specific to the method of direct evaluation can be used in addition and the adjustment of the results obtained through the method of the minimal standard budget. On this purpose the preliminary, current budgeting process is taken into consideration and the economic and social forecasts of the following year. By estimating the revenues in the budget of the next year, their level for the current year is also taken into consideration, and can be adjusted according to possible changes in the legislation regarding taxes and other earnings, as well as the influence of economic, social and political factors and the international conjuncture.

The value of the budget indicators is directly correlated with the estimated level of the gross domestic product for the following year, when there is an estimated inflation rate and a predictable level of the exchange rate of the national currency.

In these circumstances, of utmost importance is the evaluation of public expenditures at the level of the needs of the following budgetary year. That means a harmonization of the means to support with proper incomes the increase of public spending.

The evaluation of public expenditures does not necessarily mean their increase but fixing the amount in terms of insufficient public resources, the predicted budget deficit should be bearable (within 2%-3% of GDP).

The method of the minimal standard budget may also be considered as useful in setting the values of public expenditure budgetary indicators of public institutions, where the incidence of altering economic, social and political conditions is reduced. If there is no reasonable placement of a a public institution in such a category (although this may result just by applying the method to the period of reference) one can use modern budgetary programming techniques to make the necessary adjustments.

The setting of the amount of budget expenditures on the basis of the lowest costs, historically determined, which could be considered as minimal standard costs, has advantages because it uses precise budgeting data and does not imply laborious calculations, which would happen in the case of some indicators of cost standards based on previous calculation, difficult to check and validate. The role of this procedure is not highlighted only during periods of economic austerity, by a minimum funding of public institutions in view to fulfilling all the duties stipulated by their organization laws. It is also an objective criterion that would harmonize the requirements for a greater amount of financial resources, with the need to use them at the highest efficiency rate.

The disadvantages of the work procedure put forward by this study are similar to those of other methods of setting the value of budget indicators, applied in the current financial practice.

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INSURANCE PREMIUM, A CONTEMPORARY APPROACH

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Abstract. *The article aims to present a modern analysis of the insurance premiums in our country. It accentuates the proper foundation of the insurance premiums as a necessity of the modern economy.*

Keywords: insurance premium; premium rate tariff; gross premium; the foundation of the premium tariffs; insurance fund.

JEL Codes: G22 ; G32.
REL Code: 11C.

The insurance premium represents the amount of money predetermined which the insured is paying to the insurer so that he can form the insurance fund necessary for the discharge of the insurance compensation or of the insured amount to the production of the insured risk. From the received insurance premiums, the insurer forms in addition to the reserves required for the discharge of the compensations or of the insured amounts, other reserves set by the law covering their expenses regarding the establishment and the management of insurance reserves.

PA= SA × premium rate tariff (m.u.), where SA=the insured amount

Premium rate tariff, which is also called gross premium, is differentiated as level, according to the insurance branch, the type of the insured item, the frequency and the intensity of production of the insured risks and has in its structure two elements, namely the basic rate, also called the net premium, and the addition or supplement to it. Net premium is intended to form the fund necessary for the discharge of the compensations and of the insured amounts, and the addition serves to form the monetary resources that is needed to cover the expenses for the establishment and administration of the insurance fund, to finance some measures of preventing the damages, setting up a reserve fund and achieve a certain benefit (profit).

Gross premium = net premium + additional premium (m.u.) (Tănăsescu, 2003)

Insurance Law no. 32 / 2000 (updated in 2004) comes and completes verbatim:

- art.2/13 – "subscribed gross premiums – premiums received and receivable, including re-insuring premiums and receivable, related to all insurance contracts and reinsurance contracts which come into force in the reference period, before deducting any amount from it";
- art.2/14 – "subscribed net premiums – subscribed gross premiums from which infer the paid amounts and to pay as reinsurance premiums";
- art.2/15 – "received gross premiums – the total of received premiums, including the reinsurance premiums received in the reference time, before deducting any amount from it";

1. art.2/16 – "received net premiums – received gross premiums from which infer the paid amounts";
2. Permanent health insurances, managed the same as the life insurances;
3. Capitalization insurance which include: single-premium life insurance, life insurance with first installment.

The foundation of the premiums tariffs

For a risk to become an insured risk it is necessary to be registered in a statistical record.

The data from the statistical series are used to determine the probabilities of the occurrence of the risk, frequency and its intensity. The time horizon varies depending on the nature of the risk. The higher it is, the bigger the degree of accuracy for calculation of the insurance premiums is. For each insurance category, the insurance companies establish on the basis of insurance practice, the increase of the minimum period of observation necessary for the accuracy of the actuarial calculations (Armeanu, 2009). Therefore, in housing insurance the observation period is of 10-15 years, for earthquake risk 30-35 years, for crops 10-20 years etc. The data collected from the insurance practice present a special importance because it is underlying the decision to ensure that risk or not. Through these, the insurer can establish the probabilities of producing events necessary to determine the volume of its liability and of the insurance premiums.

The payment obligation of the insurer arises when the insured risk occurs and it is fulfilled through the insurance fund.

The insurance fund is used centrally for:

- the establishment of the technical or mathematical reserves funds provided under legal rules.
- Payment of the damages or of the insured amounts in case of producing events or insured risks.
- The cover of the administrative-domestic expenses in the company.

Premium rate tariff or net premium rate (Pbu) consists of:

- net premium rate (or unitary net premium-Pnu) used for the establishment of the insurance fund necessary to cover the damages determined by the production of the insured risk.
- addition (a) or the supplement of the net premium necessary for the establishment of the reserve fund, making a profit, financing other expenses arising at the level of the insurer.

Therefore: $Pbu = Pnu + a$

where:

Pbu – unitary gross premium or gross premium rate;

a – premium addition.

In order to determine the net premium rate it starts from the characteristics of the insurance contract concluded between the insured and the insurer, which establish the rights and obligations of the parties. The random character of the insurance contract involves the accomplishment of the financial obligations by the contracting parties in relation with the production of the event or the insured risk which is future and uncertain. Also, by the insurance contract is being established a financial transaction equivalent from the point of view of the obligations of the Contracting Parties. Therefore, the insurance theory provides financial equality concerning the financial effort accomplished by the insured and the insurer

too, in different periods of time, during the life of the insurance contract, even though in reality one of the contracting party pays more than it has contributed.

The law of large numbers[1] :

Be X1..., Xn a row with independent random variables two by two.

We note with M(Xi), i=1,n, average of the variables. Therefore:

$$\lim_{n\to\infty}\left(\frac{1}{n}\sum_{i=1}^{n}X_i-\frac{1}{n}\sum_{i=1}^{n}M(X_i)\right)=0$$ is taken place with probability 1.

Moivre Principle[2]-Laplace[3] (particular case of the principle central limit):

If the random variable X_n has the binomial distribution with parameters n and p and X has normal distribution with parameters 0 and 1, then:

$$\lim_{n\to\infty}P\left(a<\frac{X_n-n\times p}{\sqrt{n\times p\times q}}<b\right)=P(a<X<b)=\frac{1}{\sqrt{2\pi}}\int_a^b e^{-\frac{t}{2}}dt$$

Where q=1-p.

We assume that we have independent random variable $X_i=\begin{pmatrix}1 & 0\\ p & q\end{pmatrix}$ two by two, then in accordance with the Moivre-Laplace principle the distribution function of the random variable $\frac{\sum_{i=1}^{n}X_i-n\times p}{\sqrt{n\times p\times q}}$ converges to the distribution function of the normal law N(0,1).

We consider that an insurance company has insured in one year n identical and independent items, subject to the same risk. We note with Xi the random variable associated to good i defined as:

$$X_i=\begin{pmatrix}D & 0\\ p & q\end{pmatrix}$$

Where D - represents the amends received by the insured in case of producing the risk

P - Probability of damage

q - Contrary probability

p+q = 1.

The average and the dispersion for the considered random variables are:

$$M(X_i)=p\times D$$

$$D^2(X_i)=D^2\times p\times q$$

We mark with X the random variable that represents the total damage caused by the production of the insured risk for every good, then we have $X=\sum_{i=1}^{n}M(X_i)$

Because the Xi variables are independent, the average, the dispersion of the X variable is the following:

$$M(X)=\sum_{i=1}^{n}M(X_i)=n\times p\times D$$

$$D^2(X)=n\times p\times q\times D^2$$

Applying the principle of law of large numbers[5] (also known as Bernoulli's principle[6]), in our case we have:

$$\lim_{n\to\infty}\frac{\sum_{i=1}^{n}X_i}{n}=p\times D$$ With probability 1.

From the last obtained relation through law of large numbers we draw the following conclusions:

- for a number n sufficiently big of insurance contract concluded by the insurance company, the average net compensation tend almost certainly to average of each variable defined for each item insured first named in the insurance theory and actuarial premium.
- the insurance contract is equitable if the unitary net premium paid by the insured is equal with the average compensation paid by the insurer PNU = p × D.

If the total amount of the damage is bigger than the volume of the insurance fund established at the company's level based on the actuarial premiums (npD) then the insurer is obliged to constitute a reserve fund (R).

Notes

(1) The fundamental principle of statistical research which assumes to take into considerations a community with sufficient number of individual cases, so that random deviations, in one sense or another, to be offset by putting into evidence a certain size/value that is typical for the whole community.

(2) Abraham de Moivre – famous French mathematician for *Moivre formula*, which links the complex numbers of trigonometry and for his contribution in normal distribution and in the theory of probability.

(3) Pierre-Simon, marquis de Laplace – French mathematician and astronomer, whose contribution was fundamental in the development of mathematical astronomy and statistics.

(4) As increases the number of cases over which is made the probability calculus, it increases the absolute deviation, while the relative deviation (deviation between the relative frequency and probability taken in module) deviation to the extent that these deviations become practically zero on a significant number of cases, it means the probability of the deviation is equal to one.

(5) Jacob Bernoulli – Swiss mathematician and physician, has contributed significantly to the development of probability theory, and to the calculation of the variations and to the research of the infinite row.

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SHAPING THE AMOUNT OF THE INSURANCE SUM IN THE CASE OF HYDRO-POWERED GENERATORS

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Abstract. *Currently, the hydropower industry is facing a serious problem – an increase in events that halt production, resulting in significant direct and indirect damage, hence the need to seek ways to transfer the insurance costs. As a result of the advanced age of the equipment and interruptions that occur during the production process, it is important to develop a model to help equipment owners to establish damages needed for the incurred costs.*

Keywords: hydro; sum insured; shaping.

JEL Code: G22.
REL Codes: 8C, 11C.

1. Hydro-powered generators' insurance

Maintaining and providing hydro-powered generators' insurance and hence their components are important processes under the following circumstances:

- Most of the older equipment is approaching or have exceeded their life limits set by design at about 30 years. Such age will not necessarily result in their removal from production but will assume greater control due to the aging of the insulation.
- Most new equipment units are the same size as the old generation, but have higher power and voltage, so that they will support a higher stress level.
- Currently, the existing units have established a higher level of reliability in power generation and distribution. It is necessary to know the status of generators using predictive maintenance techniques and forecasting tests.

These factors for improving the maintenance process can be supported by protocols that include field testing. This is an effective practice to identify problems for hydro-powered generators, practice which is useful in:

• Increasing reliability.
• Reducing maintenance costs.
• Increasing the life of the machine.

For unique industries, such as hydroelectric power companies, hydro insurance policies refer to covering technical failures, reduced performance, devising contingency plans and third party liability. It is essential that energy producers develop an insurance program tailored to take advantage of all shades of coverage available in the market today, without paying too much or to give up of some of the coverage provided.

2. Estimating the degree of risk and insurance value of hydropower equipment

In order to establish the insurance sum, for damage predict and premium calculation we use a series of indicators, such as average costs of repair/replacement, compensation indexes and damage rates. We denote: N_{ec} the number of equipment of the same type provided during the period T, $V_{ec,j}^{0}$ the initial value of the equipment j, $W_{ec,j}$ the insurance value of the equipment j, $W_{ec,tot}$ the total amount of insurance $n_{d,T}$ the number of claims during the period T, $w_{ec,j}$ the compensation value j, $\overline{V}_{ec}$ the average amount of insurance for an equipment, $S_{ec,d}$ the total amount of compensation paid, $\bar{v}_{ec,d}$ the average amount of compensation for equipment, gu_j the degree of wear, $\overline{C}_{ir,j}$ the average annual cost of maintenance/repair, $p_{j,T}$ the probability of failure (i.e. in the case of the hydro-powered generator P_T, the probability of failure of the hydro-powered generator), $q_{j,T} = 1 - p_{j,T}$, $C_{inl,j}$ the replacement cost, $\overline{C}_{ec,j}$ the average annual cost of the equipment j, $\overline{C}_{des,j}^{(\alpha)}$ the average compensation cost with a level of significance α, $id_{j,T}$ the index of damages to the equipment j during the give time span and $\bar{I}_{d,T}$ the average index of compensation of equipment during the give time span, we have the following equations:

$$W_{ec,tot} = \sum_{j=1}^{N_{ec}} W_{ec,j}\,, \qquad \overline{V}_{ec} = \frac{W_{ec,tot}}{N_{ec}}, \qquad S_{ec,d} = \sum_{j=1}^{n_{d,T}} w_{ec,j}\,, \qquad \overline{C}_{ec,j} = q_{j,T} \cdot \overline{C}_{ir,j} + p_{j,T} \cdot V_{ec,j}^{0},$$

$$\sigma_{\overline{C}_j}^2 = \overline{C}_{ir,j}^2 \cdot q_{j,T} + C_{inl,j}^2 \cdot p_{j,T} - \overline{C}_{ec,j}^2, \quad \overline{C}_{des,j}^{(\alpha)} = \overline{C}_{ec,j} + \frac{\sigma_{\overline{C}_j}}{\overline{C}_{ec,j}} \cdot z_{1-\frac{\alpha}{2}}, \quad \bar{v}_{ec,d} = \frac{S_{ec,d}}{n_{d,T}}, \quad id_{j,T} = \frac{w_{ec,j}}{W_{ec,j}},$$

$\bar{I}_{d,T} = \dfrac{S_{ec,d}}{N_{ec} \cdot \overline{V}_{ec}} = \sum_{j=1}^{N_{ec}} a_{ec,j} \cdot id_{j,T}$, where $a_{ec,j} = \dfrac{W_{ec,j}}{\sum_{j=1}^{N_{ec}} W_{ec,j}}$ is the weight of insurance value of the equipment j in the total amount of insurance and $z_{1-\frac{\alpha}{2}}$ is the quintile of order $1-\dfrac{\alpha}{2}$ of the standard normal distribution. Taking a period of time of T years, we obtain the aggregate indexes. Indexing the sizes, the average annual index for compensation for an equipment in k year will be:

$$\bar{I}_d^{(k)} = \frac{S_{ec,d}^{(k)}}{N_{ec}^{(k)} \cdot \overline{V}_{ec}^{(k)}} = \frac{n_{d,T}^{(k)}}{N_{ec}^{(k)}} \cdot \frac{\bar{v}_{ec,d}^{(k)}}{\overline{V}_{ec}^{(k)}}.$$

Thus, average annual compensation index can be regarded as the random variable:

$$\bar{I}_d : \begin{pmatrix} \bar{I}_d^{(1)} & \bar{I}_d^{(2)} & \ldots & \bar{I}_d^{(T)} \\ p_1 & p_2 & \ldots & p_T \end{pmatrix},$$

where the probability p_k can be defined with one of the following equations:

$$p_k = \frac{S_{ec,d}^{(k)}}{\sum_{i=1}^{T} S_{ec,d}^{(i)}}, \quad p_k = \frac{n_{ec,d}^{(k)}}{\sum_{i=1}^{T} n_{ec,d}^{(i)}}, \quad p_k = \frac{\bar{v}_{ec,d}^{(k)}}{\sum_{i=1}^{T} \bar{v}_{ec,d}^{(i)}}.$$

We call the *average annual aggregate compensation index* the mean value of $\overline{I}_d$, $M\left(\overline{I}_d\right)=\sum_{k=1}^{T}\overline{I}_d^{(k)}\cdot p_k$. The ratio of the value of total insurance claims and the total value of equipments of the same type, insured in that period, gives the *overall average index of compensations for insured equipment*. Denoting this index with $\overline{J}_{ec,T}$, we have: $\overline{J}_{ec,T}=\frac{1}{\sum_{k=1}^{T}N_{ec}^{(k)}\cdot\overline{V}_{ec}^{(k)}}\cdot\sum_{k=1}^{T}S_{ec,d}^{(k)}$.

The insurance value of the equipment *j* is obtained from the equation $W_{ec,j}=\overline{C}_{des,j}^{(\alpha)}\cdot I_j^{-1}$, where the index I_j will be chosen among $\overline{I}_{d,T}$, $\overline{J}_{ec,T}$ and $M\left(\overline{I}_d\right)$.

These indicators are also used in the calculation of insurance premium charge.

We can build a risk model for all similar equipments insured as follows: we denote X_i the extent of the damage *i*, *n* the number of damages occurred and *Y* the total damage caused, we have: $Y=\sum_{i=1}^{n}X_i$. Considering that X_i-s are independent and identically distributed random variables, and variable count *n* independent of individual damages X_i, we have the mean and spread of *Y*:

$$\overline{Y}=M\left(Y\right)=M\left(n\right)\cdot M\left(X\right)=\overline{n}\cdot\overline{X},$$

$$D_Y=D^2\left(Y\right)=D^2\left(X\right)\cdot M\left(n\right)+D^2\left(n\right)\cdot M^2\left(X\right)=D_X\cdot\overline{n}+D_n\cdot\overline{X}^2.$$

The ratio of standard deviation and the average of a random variable is the coefficient of variation of the variable. Denoting with V_X the coefficient of variation of individual damages, $V_X=\frac{\sqrt{D_X}}{\overline{X}}$, and with V_n coefficient of variation of the number of damages, $V_n=\frac{\sqrt{D_n}}{\overline{n}}$, the coefficient of variation of total damage is:

$$V_Y=\frac{\sqrt{D_Y}}{\overline{Y}}=\frac{\sqrt{D_X\cdot\overline{n}+D_n\cdot\overline{X}^2}}{\overline{n}\cdot\overline{X}}=\sqrt{\frac{D_X}{\overline{n}\cdot\overline{X}^2}+\frac{D_n}{\overline{n}^2}}=\sqrt{\frac{V_X^2}{\overline{n}}+V_n^2}.$$

Assuming that *n* follows the distribution of the rare events (which is the Poisson distribution, we denote *n* ~ Poisson(λ)), resulting in $\overline{n}=M\left(n\right)=\lambda$, $D_n=D^2\left(n\right)=\lambda$, $V_n=\frac{\sqrt{D_n}}{\overline{n}}=\frac{\sqrt{\overline{n}}}{\overline{n}}=\frac{1}{\sqrt{\overline{n}}}$ and $V_Y=\sqrt{\frac{V_X^2}{\overline{n}}+V_n^2}=\sqrt{\frac{V_X^2+1}{\overline{n}}}=\sqrt{\frac{1+V_X^2}{N\cdot q}}$, where *q* is the frequency of the damage and *N* is the number of policies (or equipments covered by a general policy). V_X, the coefficient of variation of individual damage for the risk of failure is determined by identifying it with the coefficient of variation of the duration of repair (denoted with V_t), thus $V_X = V_t$, and the coefficient of variation of total damage for the risk of failure is:

$$V_{Y_{dec}}=V_{V_d}=\frac{\sqrt{D_Y}}{\overline{Y}}=\frac{\sqrt{D^2\left(n\cdot S\right)}}{\overline{n}\cdot S}=\frac{\sqrt{D^2\left(n\right)}}{\overline{n}}.$$

Assuming that *n* ~ Poisson, then $V_{V_d}=\frac{\sqrt{\overline{n}}}{\overline{n}}=\frac{1}{\sqrt{\overline{n}}}$, where *n* is the number of defects and $\overline{n}$ is the average number of defects. In determining the tariff quota, the insurer uses both the average index for compensation and the trend of the compensation index. The compensation

index $I = q \cdot \bar{d}$, where q is the frequency of damages and $\bar{d}$ is the average compensation degree. When we have records of the compensation index (annual, quarterly, etc.) denoting I_j the index of compensation in the period j and k the number of time periods, we define the average compensation index: $\bar{I} = \frac{1}{k} \cdot \sum_{j=1}^{k} I_j$. This rate will be equal to the risk tariff (or the tariff quota of risk premium), thus $T_r = \bar{I}$. The risk margin is calculated by using the coefficient of variation of the compensation index (denoted V_I). The price for the risk margin will be $T_{mr} = t_{\alpha, k-2} \cdot \bar{I} \cdot V_I$, where $t_{\alpha,\ k\ -\ 2}$ is the quintile of the Student distribution with $k - 2$ degrees of freedom and significance level α, and $V_I = \frac{\sigma_I}{\bar{I}}$, $\sigma_I = \sqrt{\frac{1}{k-1} \cdot \sum_{j=1}^{k} \left(I_j - \bar{I}\right)^2}$.

If the dynamic of the compensation index has downward trend, the price index calculated based on average compensation will include systematic errors in predicting the future insurance premiums. Thus, a better forecast is obtained using methods of extrapolation of the trend of the index of compensation. For this, we use a linear adjustment $\tilde{I}_j = a + b \cdot t_j$, where $\tilde{I}_j$ is the adjusted values of the compensation index, t_j is the time variable, a and b are the parameters of the linear trend which will be obtained by the method of the least squares. Thus the problem is resolved:

$$\min_{a,b} \sum_{j=1}^{k} \left(a + b \cdot t_j - I_j\right)^2 .$$

For simplicity, periods are centered, meaning $\sum_{j=1}^{k} t_j = 0$.

Resulting $\tilde{a} = \frac{1}{k} \cdot \sum_{j=1}^{k} I_j$, $\tilde{b} = \frac{1}{\sum_{j=1}^{k} t_j^2} \cdot \sum_{j=1}^{k} t_j \cdot I_j$, and the compensation index linearly adjusted with time is $\tilde{I}_j = \tilde{a} + \tilde{b} \cdot t_j$. To determine the tariff for the risk margin we calculate the standard deviation of the empirical data series in comparison to the values of the adjusted index of compensation, meaning $\sigma_I^* = \sqrt{\frac{1}{k-1} \cdot \sum_{j=1}^{k} \left(I_j - \tilde{I}_j\right)^2}$. Thus, the risk margin rate is $T_{rm} = t_{\alpha, k-2} \cdot \sigma_I^*$. Unitary risk premium (risk tariff) is $T_r = \tilde{I}_j$, where j is the index of the period covered by the forecast. Net tariff quota is: $T_n = T_r + T_{rm}$.

3. Calculation example

For this example, first we review a few items from a sample calculation presented in the previous report, to refresh some concepts and denotations. It is considered that an analysis was made on a calendar year on a population of 90 hydro-powered generators that worked in that year, on average 4,310 hours per year each, and there were 380 incidents recorded as such.

Considering a number of N_{DH} = 312 possible defects in a hydro-powered generator (accordind to the catalogue of possible events), we have a failure probability of 0.029 per hydro-powered generator.

$$T_{echiv} = \frac{4310}{8760} = 0.47 , \; P_T = \frac{1}{0.47} \frac{380}{312 \times 90} = 0.029 , \; L = 0.029 \times 836 = 24$$

With this value for L we obtain the quantitative values of hydro-powered generators' state levels for the analyzed period. Next we analyze each hydro-powered generator separately. For example for the hydro-powered generator No. 72 we obtained the following situation:

- 24 faults with a total of 44 points
- 24 maintenance works with a total of 32 points
- 14 tests with a total of 14 points
- characteristics of F & C - 20 points.

The hydro-powered generator totaled 110 points and was classified in category 5 unsatisfactory condition.

To confirm the decision of the status of the hydro-powered generator we needed to conduct tests and calculation of conditional probabilities on its status. The calculation is based on Bayes' formula. A minimum of two tests which are independent of each other are done, but with results on the state of the insulation (for example). For this purpose we define the following events:

N = hydro-powered generator is in unsatisfactory condition
S = hydro-powered generator is in satisfactory condition
B = hydro-powered generator is in good condition
+ = tests give a positive result (according to the state of the HG)
- = tests give negative results (as opposed to the state of the HG).

Based on the analysis we can consider that 20% of the population of hydro-powered generators have stator insulation in an unsatisfactory condition, 50% in a satisfactory condition and 30% in good condition and that they could represent the probabilities of these states:

$$P(N) = 0.20,\ P(S) = 0.50,\ P(B) = 0.30.$$

Based on the statistics and on the experience of the correlation of the test results with the state of the hydro-powered generator we can estimate trial 1 gives results in the following three possibilities:

- a positive result in 90% of cases when performed at a hydro-powered generator in an unsatisfactory condition (confirming the unsatisfactory state of insulation),
- a positive result in 60% of cases when performed at a hydro-powered generator in a satisfactory condition (confirming satisfactory condition of the insulation),
- a negative result in 10% of cases when performed at a hydro-powered generator in a good condition (invalidates a very good condition of the insulation) – meaning a 10% false positive.

So the probability of the test 1 results conditioned on the state of the hydro-powered generator will be in this case: $P(+1|N) = 0.90$, $P(+1|S) = 0.60$, $P(+1|B) = 0.10$

($P(+|N)$ is the probability of test results assuming that hydro-powered generator is in a very unsatisfactory state).

Bayes' formula is calculated $P(S|+)$ meaning the probability of the hydro-powered generator to be in unsatisfactory condition, because the test result is positive:

$$P(N|+1) = \frac{P(+1|N)\,P(N)}{P(+1|N)\,P(S) + P(+1|S)\,P(S) + P(+1|B)\,P(B)}$$

If you enter numeric values for probabilities in the formula we obtain:

$$P(N|+1) = \frac{0.90 \times 0.20}{0.90 \times 0.20 + 0.60 \times 0.50 + 0.10 \times 0.30} = 0.35$$

$$P(S|+1) = \frac{0.60 \times 0.50}{0.90 \times 0.20 + 0.60 \times 0.50 + 0.10 \times 0.30} = 0.59$$

$$P(B|+1) = \frac{0.10 \times 0.30}{0.90 \times 0.20 + 0.60 \times 0.50 + 0.10 \times 0.30} = 0.06$$

Therefore likely to be hydro insulation in unsatisfactory condition, given that a test result was positive, 0.35.

Perform a second independent test first. Both tests must be positive, ie, to confirm status hydro.

Use conditional probability P(N | + 1 ∩ +2), ie the probability of a hydro really be in unsatisfactory condition since both test results are positive.

Next, instead of state probabilities P(N), P(S) and P(B), considered on the basis of statistics, will now use Bayes formula to calculate probabilities: P(N|+1), P(S|+1) şi P(B|+1) subject to the outcome of the first test.

2 test for the probability of a test subject and the state hydro, we obtain: P(+2|N∩+1)=P(2|N)=P(+|N)=0.90, P(+2|S∩+1)=P(2|S)=P(+|S)=0.60

P(+2|B∩+1)=P(2|B)=P(+|B)=0.10

Using Bayes fromulele again obtain:

$$P(N|+1 \cap +2) = \frac{0.90 \times 0.35}{0.90 \times 0.35 + 0.60 \times 0.59 + 0.10 \times 0.06} = 0.47$$

$$P(S|+1 \cap +2) = \frac{0.60 \times 0,59}{0.90 \times 0.35 + 0.60 \times 0.59 + 0.10 \times 0.06} = 0.52$$

$$P(B|+1 \cap +2) = \frac{0.10 \times 0.06}{0.90 \times 0.35 + 0.60 \times 0.59 + 0.10 \times 0.06} = 0.01$$

So after two likelihood tests have improved and the decision on hydro condition becomes more accurate. In conclusion, hydro no status. 72 analyzed and tested to be unsatisfactory with a probability of 47%.

As shown in the example above, we believe that they were registered and need repair costs over the five categories of defects (minor, medium, serious, very serious and extremely serious) and that the failure probability was calculated for each category of defects: $P_{T_1} = 0,2$, $P_{T_2} = 0,18$, $P_{T_3} = 0,1$, $P_{T_4} = 0,05$ şi $P_{T_5} = 0,029$. Depending on the average lifetime of a hydro agree that his replacement is likely 0,015, thus $P_{inl} = 0,015$. Also, for ease of calculations taking into account the myriad of possible values, we agree to express the cost of repairing the percentage of the initial hydro generator set at a time, so the V_{HG}^0. Thus, the cost category j is $C_{ir,j} = pr_j \cdot N_{HG} \cdot V_{HG}^0$, where N_{HG} is the number of hydro analyzed. From the analysis we have undertaken $pr_1 = 0,002$, $pr_2 = 0,0035$, $pr_3 = 0,015$, $pr_4 = 0,06$ and $pr_5 = 0,15$. We get an average cost of repair/maintenance on the hydro

$$\overline{C}_{ir} = \frac{1}{N_{HG}} \cdot \sum_{j=1}^{5} pr_j \cdot N_{HG} \cdot V_{HG}^0 \cdot P_{T_j} =$$

$$V_{HG}^0 \cdot (0,2 \cdot 0,002 + 0,18 \cdot 0,0035 + 0,1 \cdot 0,01 + 0,05 \cdot 0,06 + 0,029 \cdot 0,15) = 0,00938 \cdot V_{HG}^0.$$

As established statistical margin of error of this estimator to a level of significance α (confidence probability $1-\alpha$) is given by the product of the coefficient of variation of the estimator (ratio of standard deviation estimate) and quintile of order $1-\frac{\alpha}{2}$ the normal

distribution of mean 0 and dispersion 1 (standard normal). In our case, the dispersion estimator is $\sigma^2_{\overline{C}_{ir}} = \left(\sum_{j=1}^{5} pr_j^2 \cdot P_{T_j}\right) \cdot \left(V_{HG}^0\right)^2 - \left(\overline{C}_{ir}\right)^2 =$

$$\left(0,002^2 \cdot 0,2 + 0,0035^2 \cdot 0,18 + 0,01^2 \cdot 0,1 + 0,06^2 \cdot 0,05 + 0,15^2 \cdot 0,029 - 0,00938^2\right) \cdot \left(V_{HG}^0\right)^2 =$$

$0,0007575 \cdot \left(V_{HG}^0\right)^2$, so the standard deviation $\sigma_{\overline{C}_{ir}} = \sqrt{\sigma^2_{\overline{C}_{ir}}} = 0,0275 \cdot V_{HG}^0$ and coefficient of variation $cv_{\overline{C}_{ir}} = \dfrac{\sigma_{\overline{C}_{ir}}}{\overline{C}_{ir}} = \dfrac{0,0275 \cdot V_{HG}^0}{0,00938 \cdot V_{HG}^0} = 2,932$. For $\alpha = 0,05$ We quintile $z_{0,975} = 1,96$, resulting margin of error $cv_{\overline{C}_{ir}} \cdot z_{0,975} = 2,932 \cdot 1,96 = 5,7467\,\%$. Improve the average cost estimate, we get $\overline{C}^*_{ir} = \left(1 + 0,057467\right) \cdot 0,00938 \cdot V_{HG}^0 = 0,0099 \cdot V_{HG}^0$ and average total cost of compensation for damage to the hydro costs have driven repair/replacement $\overline{C}^{(\alpha)}_{des,HG} = \overline{C}^*_{ir} + P_{inl} \cdot V_{HG}^0 = 0,0099 \cdot V_{HG}^0 + 0,015 \cdot V_{HG}^0 = 0,0249 \cdot V_{HG}^0$. For example $V_{HG}^0 = 6$ M\$ we get $\overline{C}^{(\alpha)}_{des,HG} = 149\,400$ \$/year. This coupled with the expected cost rates (first) used / approved by the insurer and the amount sought by the applicant for insurance is to be finalized based on the amount representing the value of insurance for hydro.

4. Conclusions

To be most suitable mathematical model for determining the amount of insurance must take into account the centralized analysis of data on takeovers of hydropower plants, so as to fold more than the realities on the ground. For insurance values discussed in the proposal the insured, the insurer shall select indices that give the background of the first models of insurance that minimizes the likelihood of predation, meaning the probability that the amount of damages exceed the amount of premiums collected.

Our estimator is designed as a combination of the two major costs: the average cost of repair and replacement of the hydro. Due to lack of statistical data on the Romanian market for such insurance, we aimed to substantiate the values expected by the insurer insurance costs here are more easily involved data collected or assessed by a specialist in the field of hydro.

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INVESTMENT PROCESS OF VOLUNTARY PENSION FUNDS – A CLUSTER APPROACH

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Abstract. *In this paper, we intended to establish a grouping of the voluntary pension funds in Romania by risk levels using cluster analysis. The investment policy of the voluntary pension funds is influenced by a variety of factors: the taxpayers' risk profile, the capital market conditions, and the number of competitors. The results show that the voluntary pension funds take into account when regularly selecting and optimizing the financial portfolio, the level of risk acceptable for the contributors, reflected in the existence of two clusters on the voluntary pension fund market in Romania.*

Keywords: cluster analysis; voluntary pension funds; investment policy.

JEL Codes: J32, G32.
REL Cod: 16G.

1. Introduction

Pension reforms have become an important part of public policy across the globe and Romania is no exception. Starting from 2007, in Romania the pension system is a multi-pillar system. Beside the mandatory component (1st Pillar), pay-as-you-go type, based on the solidarity inter and intra generations, the other two components begun to function, i.e., the 2nd Pillar (mandatory private pensions) and the 3rd Pillar (voluntary private pensions).

The most important feature of the public component is that the active population's contributions are redistributed in favor of the inactive population (retired), where as the most important feature of the 2nd and the 3rd Pillar is the fact that the resources attracted from contributions are not redistributed. These contributions are made in individual accounts, and the pension funds managers are investing them in some specific financial instruments. The accrued benefit from such a plan is attributable to contributions made into an individual account and investment gains on those funds, less any losses and expense charges. Upon retirement, the participant's account is used to provide retirement benefits.

Pension funds' investments are strictly regulated, the Romanian legislation imposes some limits for different asset classes in order to secure the safety, quality, liquidity, and profitability of the investments. Voluntary pension funds can invest:

- up to 20% of their assets in bank accounts and money market instruments;
- up to 70% in state securities (T-bills and T-bonds) issued by Romania, a EU state or a European Economic Area (EEA) state, with a 50% sublimit for T-bills (maturities < 1 year);
- up to 30% in municipal bonds issued by Romania, a EU state or a EEA state;
- up to 50% in listed shares on stock markets in Romania, EU or a EEA state, with the following sublimits: 35% for Romanian shares, 35% for EU or EEA states;

- up to 30% in corporate bonds issued by Romanian, EU or EEA companies;
- up to 15% in state securities issued by other states, with sublimits of up to 15% in US, Canada, Japan and 5% in other states;
- up to 10% in municipal bonds issued by other states, with sublimits of up to 10% in US, Canada, Japan and 5% in other states;
- up to 5% in listed foreign bonds;
- up to 5% in mutual (investment) funds in Romania or other countries;
- up to 5% in private equity (not including private equity funds);
- up to 15% in supranational bonds issued by the World Bank, EBRD, EIB;
- up to 5% in commodities and derivatives on commodities: crude oil and derivates, cotton, coffee, wheat, Cu, Al, Zn, precious metals, traded on regulated markets in the US or EU;
- up to 5% in mutual (investment) funds in Romania or other countries.

In this context, the asset allocation decision is crucial in the investment process, having an impact on the amount of future private pensions.

Asset allocation is a portfolio choice among broad investment classes. According to Swensen (2005), construction of a financial asset portfolio involves a combination of science and art. The science encompasses the application of basic investment principles to the problem of combining core asset classes in an efficient, cost effective manner. The art concerns the use of common-sense judgment in the challenge of combining incorporating individual characteristics into the asset allocation process.

Iikiw (2004) mentions that asset allocation is primarily responsible for any pension fund's long-term investment performance. The author states that asset allocation focuses on finding mathematically optimized portfolios of domestic and foreign asset classes. The author maintains that these portfolios are based on assumptions in order to achieve specific risk-return objectives with high confidence. These portfolios are "no-brainers" because they do not incur additional costs (Iikiw, 2004, p. 220).

The performance of pension funds is usually measured in terms of returns rather than risk. Risks are taken into account especially during market crises, when losses in the portfolio of financial instruments of the fund could lead to depreciations in the accrued contributions.

Some studies (e.g. Ryan, Fabozzi, 2003) show that post 2001 bankruptcies of US pension funds had their roots in the actuarial evaluation techniques rather than in asset losses, if long-term stock return is considered. According to Bader (2003) and McClurken (2006), post retirement benefit plans, pertaining to the "first pillar" of a pension system, should not invest in high-risk financial instruments because this would lead to problems related to moral hazard and to the evaluation of "superfluous risk".

More recently, Otranto and Trudda (2007) have supported the idea that there is a need for a classification of the various degrees of risk for pension funds. They propose a cluster analysis based on the GARCH volatility of the rates of return. In Otranto and Trudda (2008) another methodology is carried out distinguishing between two kinds of risk for pensions funds: constant risk and time-varying risk. Although the method provides a satisfactory ex post risk analysis, the large lag necessary to get reliable estimates weakens its employment in practical applications when a timely response is required.

Other authors, such as Bikker, Broaders and Dreaw (2007), study the impact of stock market performance on the investment policy of Dutch pension funds and show that their investment policies are partially driven by the cyclical performance of the stock market. In addition they point out that pension funds respond asymmetrically to stock market shocks: rebalancing is much stronger after negative equity returns.

In this context, in this paper we propose a cluster analysis of the investment policy of voluntary pension funds in Romania.

2. Research methodology and results

Cluster analysis has long played an important role in a wide variety of fields: psychology and other social sciences, biology, statistics, economics. This type of analysis divides data into groups (clusters) that are meaningful, useful or both. If meaningful groups are the goal, then the clusters should capture the natural structure of the data.

There are numerous ways in which clusters can be formed, the essential criterion of all the procedures being the attempt to maximize the difference between clusters relative to the variation within the cluster. Hierarchical clustering is one of the most straightforward methods and it can be either agglomerative or divisive. The agglomerative clustering begins with every case being a cluster unto itself and in successive steps, similar clusters are merged. The algorithm ends with everybody in one large, but useless, cluster. Divisive clustering starts with everybody in one cluster and end up with everyone in individual clusters.

In agglomerative clustering, once a cluster is formed, it cannot be split; it can only be combined with other clusters. To form clusters using a hierarchical cluster analysis, a criterion for determining similarity or distance between cases must be established and also a criterion for determining which clusters are merged at successive steps. Agglomerative hierarchical clustering starts with each case being a cluster. At the next step, the two elements that have the smallest value for the distance measure (or largest value if similarities are used) are joined into a single cluster. At the second step, either a third element is added to the cluster that already contains two elements or two other elements are merged into a new cluster. At every step, individual cases are added to existing clusters, two individuals are combined, or two existing clusters are combined.

The agglomerative clustering has five different subgroups based on the manner in which the clusters are formed, namely: single-linkage, complete-linkage, average-linkage, centroid and Ward.

The cluster technique that was used was the WARD method:

- For each cluster, the means for all variables are calculated.
- Then, for each case, the squared Euclidean distance to the cluster means is calculated. These distances are summed for all of the cases.

At each step, the two clusters that merge are those that result in the smallest increase in the overall sum of the squared within-cluster distances. The coefficient in the agglomeration schedule is the within-cluster sum of squares at that step, not the distance at which clusters are joined. Put differently, this method combines those objects or clusters that minimize the increase in a given heterogeneity measure V.

For the g^{th} group the measure V is calculated as follows:

$$V_g = \sum_{k=1}^{K_g} \sum_{j=1}^{J} (x_{kjg} - \bar{x}_{jg})^2 \quad (1)$$

such that $V = \sum_{g=1}^{G} V_g$ (2)

where x_{kjg} is the observation of j^{th} variable for object k in cluster g and $\bar{x}_{jg}$ is the average across objects for variable j in cluster g.

When determining the number of clusters, there is a trade-off between fewer clusters and less homogeneity within clusters versus larger number of clusters and more within group homogeneity (Hair et.al, 2006). Unfortunately, no standard objective selection procedure exists, but the most widely used statistics for approaching this problem are the root mean square standard deviation (RMSSTD), semi-partial R-squared (SPRS), R-squared etc. The RMSSTD represents the square root of the variance of the newly formed cluster. Large increases suggest the joining of two quite dissimilar clusters, indicating that the previous solution was more appropriate. The SPRS measures the loss of homogeneity due to combining two clusters. A small value implies that two homogeneous groups are merged. The R-squared

measured the extent to which groups are different from each other and it has values that range from zero (no difference between clusters) to one (maximum difference between clusters). These are some of the statistics used for determining the number of clusters.

In this paper, the data used was made available by the Private Pension System Supervisory Commission and contain quarterly information about the investments made by voluntary pension funds from September 2007 until September 2010.

The data analyzed are: the amount of money invested, the share of investments by categories of assets: bank deposits, government securities, municipal bonds, corporate bonds, supranational bonds, shares, undertakings for collective investment in transferable securities and also amounts in settlement at the end of the reporting period.

The voluntary pension funds that were considered were the six that began their activity in September 2007, namely AZT Moderato, AZT Vivace, BCR Prudent, ING Clasic, ING Optim, Pensia Mea.

Analyzing the dynamics of investments of these funds have been identified clusters for each moment in time considered relevant to the investment process (Delwiche, Slaughter, 2006).

Moments that have relevant investment analysis were:

– The end of the first month in which they have invested - 30th September 2007

The following dendrogram was obtained is shown in Figure 1:

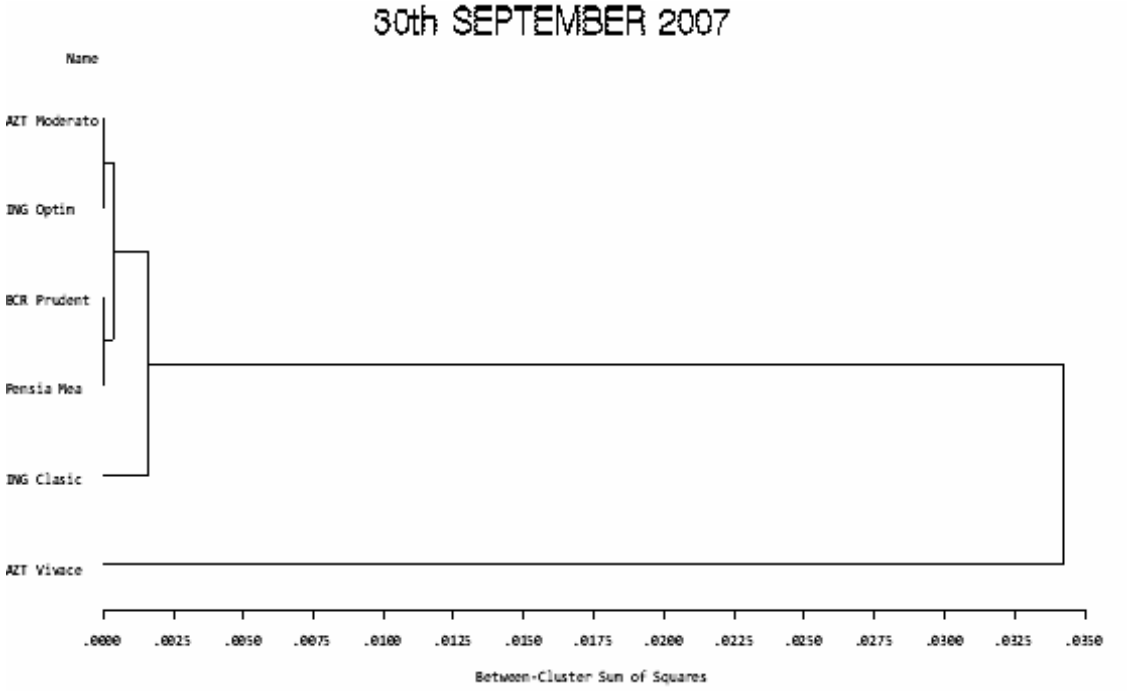

Figure1. *Dendrogram at 30th September 2007*

During this period two groups were identified, the largest jump in the RMSSTD, in absolute value being 0.0623. On the one hand there is a group with AZT VIVACE and on the other hand there is the group of the other five voluntary pension funds, distinction made entirely on the investment decisions made by these funds.

– The end of first semester 2008

Performing the same analysis the following results were obtained (see Figure 2):

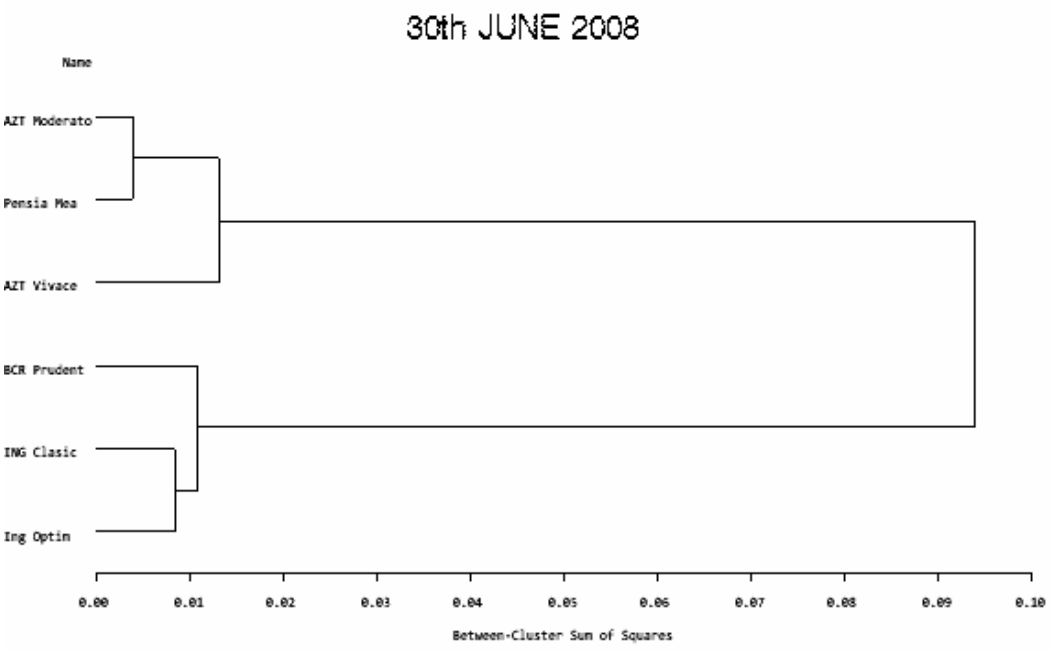

Figure 2. *Dendrogram at 30th June 2008*

It is not hard to see that the components of the groups have changes. The analytic calculus of the differences in the values of the RMSSTD and SPRS and also the plot of these statistics against the number of clusters are proof that the based on the pension funds have made changes in their investments. Therefore, there are two new groups, one that contains AZT Moderato, Pensia Mea and AZT Vivace and the other one which has BCR Prudent, ING Clasic and ING Optim.

– The end of first quarter 2009

Applying the same method a new classification of the pension funds appears, as it can be seen in Figure 3.

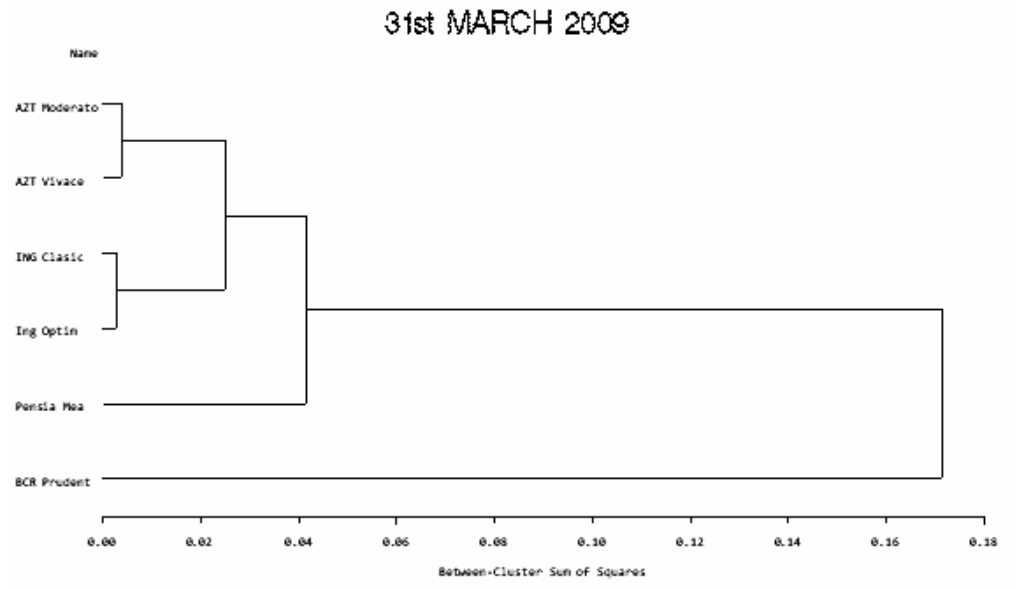

Figure 3. *Dendrogram at 31st March 2009*

The analysis results shows that there is still two groups, but with a modified structure: one cluster containing BCR Prudent and one containing the other five voluntary pension funds. The maximum change in the RMSSTD is 0.2211 and it appears when the possibility of

having three clusters emerges, establishing therefore that there are only two clusters. The result is corroborated by the plots of the statistics mentioned above against the number of clusters.

– The end of the year 2009

At this point analyzed, no changes are observed in the number of clusters, just a repositioning of the funds in their investment policy due (see Figure 4).

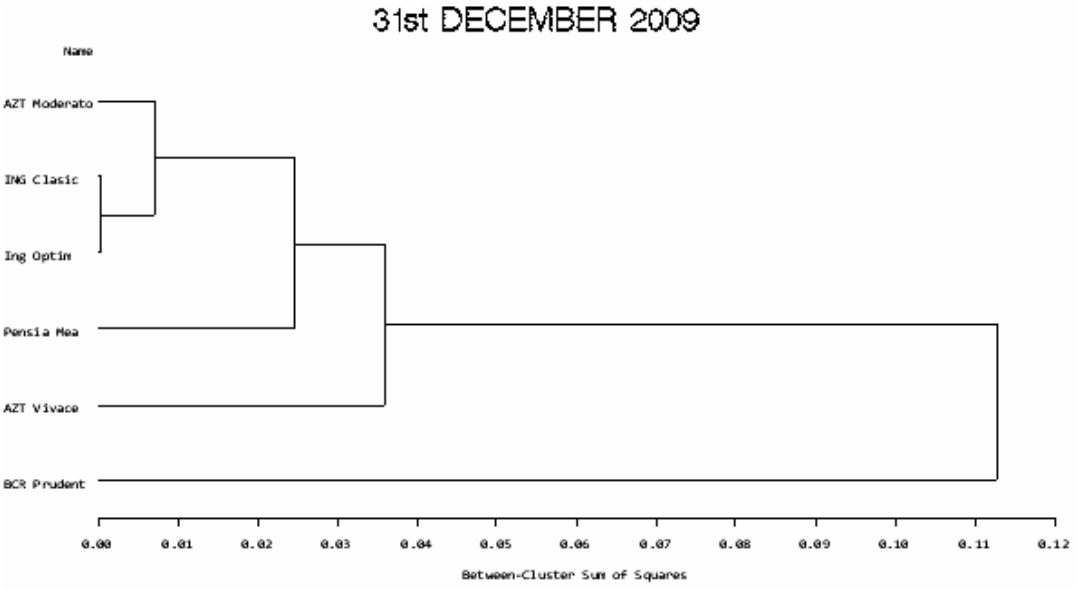

Figure 4. *Dendrogram at 31st December 2009*

Due to a maximum change, in absolute values, of the RMSSTD of 0.0598, the fund BCR Prudent remains an outlier, forming a cluster by itself and the other five pension funds forming another distinct cluster. Comparing this situation with the previous period, it can be noted that the funds managed by ING have not changed their investment policy. In the case of AZT Vivace fund, a restructuring of the investment portfolio has been made, compared to the end of March, when the pension fund had an investment strategy similar to AZT Moderato

– The end of third quarter 2010

September 2010 is the end of the period for which data are available. We performed a double analysis: of the six pension funds that have been evaluated since the beginning, but also of all the thirteen funds that are active in the voluntary pension fund market at the moment.

If we analyze the first six pension funds, the conclusions are somewhat similar to the ones from the previous period, i.e. there is the same number of clusters (two different clusters) but there is a change in the resemblance of these funds. The plots of the RMSSTD or SPRS against the number of clusters, along with the analytical calculus assert the number of two different groups (see dendrogram in Figure 5).

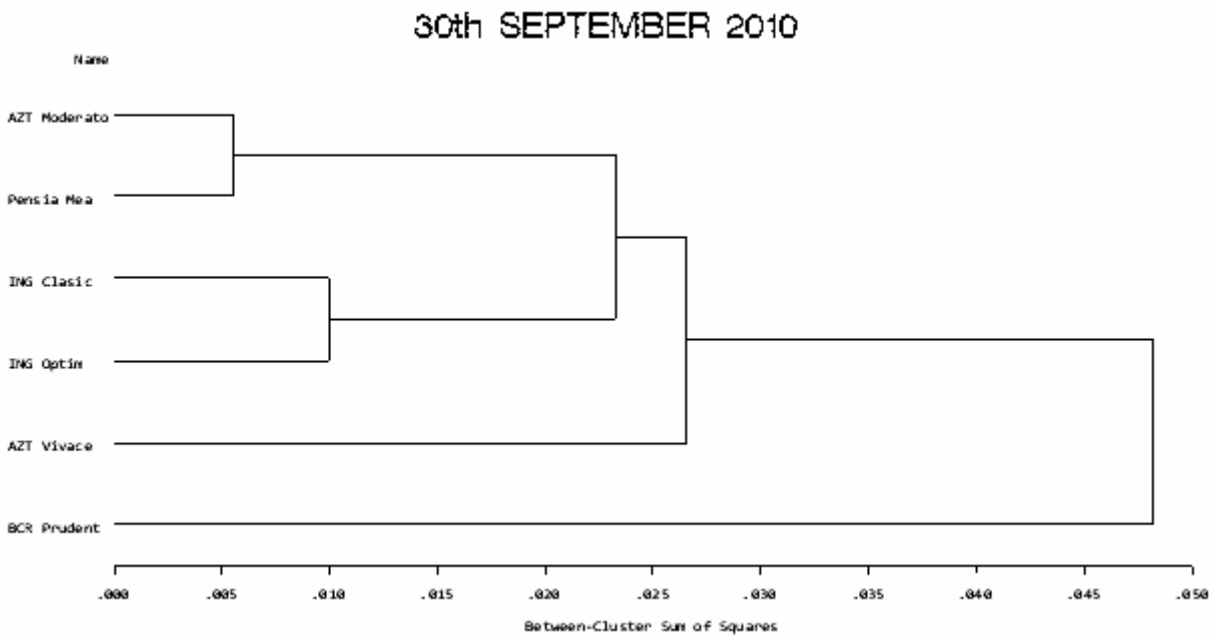

Figure 5. *Dendrogram at 30th September 2010*

At present (September 2010) there are thirteen authorized and active voluntary pension funds, namely AZT Moderato, AZT Vivace, BCR Prudent, BRD Medio, BRD Primo, Concordia Moderat, Eureko Confort, ING Clasic, ING Optim, OTP Strateg, Pensia Mea, Raiffeisen Acumulare,Stabil.

If we perform an analysis at the market level, then it can be seen the number of two clusters, their structure being different (according to the dendogram in Figure 6).

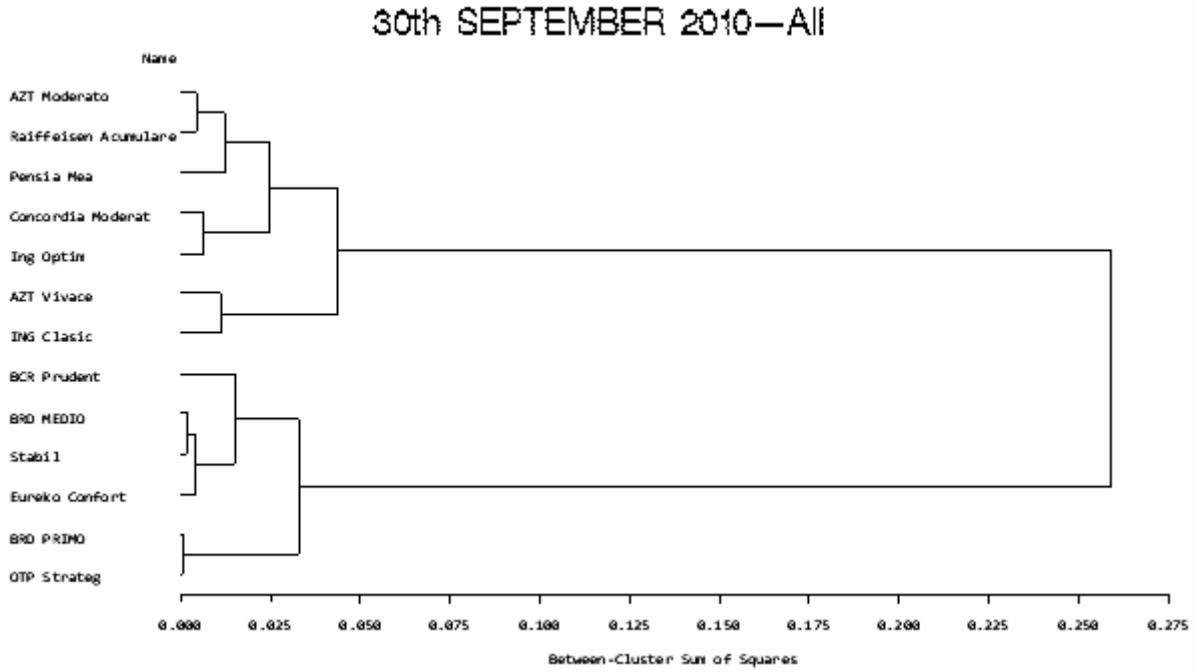

Figure 6. *Dendrogram at 30th September 2010*

The results obtained are 0.0623 for RMSSTD respectively 0215 for SPRS. In this situation the number of clusters formed in earlier periods is retained, when only six funds were analyzed and BCR Prudent fund remains in a different group from the other five funds.

3. Conclusion

The investment policy of the voluntary pension funds is crucial in achieving a superior performance as their competitors. The investment duration, the target and the taxpayers' typology have an impact on the structure of the selected portfolios and the levels of accepted risk. Also, the international turmoil in the financial markets was an important determinant of the current investment policy of the voluntary pension funds.

In this context, our goal was to establish a grouping of voluntary pension funds in Romania using cluster analysis. For accurate results, we analyzed six funds that have been operating from September 2007 until now. The cluster analysis showed that there are essentially two different groups of funds that address taxpayers that are risk averse and respectively risk lovers.

It should be noted that the analysis has certain limitations because it has been made for a short period of only three years (time since pillar 3 became active), compared to the long horizons that are considered in the investment policy.

To conclude, the results show that, when selecting and optimizing the financial portfolio, the voluntary pension funds take into account the taxpayers' risk profile, as reflected by the existence of two clusters in the pension fund market in Romania.

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INSURANCE MARKET TRENDS CAUSED BY CLIMATE CHANGE

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Abstract. *Uncertain behavior of extreme weather events is critical for insurance because of the financial effects that it generates. In this context, the effects of climate change on the frequency and hardness of natural disasters are vital information in order to restructure the portfolio of insurance products. Creation of new insurance products and schemes focused on protecting against the risks of climate change is a goal of the insurance companies. The financial innovation in the insurance field allowed policyholders to better manage their risks in a volatile environment.*

Keywords: climate change; natural disasters; insurance schemes; prudential rules.

JEL Code: G22.
REL Code: 11C.

1. Introduction

In the recent years, it was observed that the global climate is changing. This change affects weather (hurricanes, strong winds, torrential rains followed by floods, hail, extended drought etc.), strengthening their nature and having serious consequences on the environment, on the economic and social systems. Weather phenomena are thus "danger" for humans, who must take certain preventive measures against them. Two of the most important steps to be taken are to mitigate and adapt to the climate change, ideally to apply these measures being their combining.

Society development was a continuous struggle of man to find the best forms of protection. Although people have achieved important successes in fighting the forces of nature they are still powerless in the face of natural disasters (extreme events). Against these phenomena, science has not yet found adequate technical means to combat them and the financial implications are great. In this situation, the most viable solution is insurance.

In the above context, in this paper we propose to analyze the impact of climate change on the insurance, highlighting the need to mix the protection measures against these natural disasters.

2. Empirical evidences

One of the first published proposals to insure the damage costs of climate change is due to Chichilnisky and Heal (1993). The authors characterize the risks of climate change as *poorly understood, endogenous, collective,* and *irreversible,* each of which would make it hard to commercially insure climate change.

The optimal way of coping with risk is often a mix of damage mitigation, insurance, and acceptance of losses (Pate-Cornell, 1996a, Pate-Cornell, 1996b).

Studies on the economic impact of climate change suggest that it is the transition rather than the changed situation that induces costs. Adaptation lowers the impact dramatically, particularly on the longer term. But successful adaptation takes time, so that, generally, the impact is recurrent but declining. If all capital is replaced, and all practices and institutions revised, the impact of climate change may well be zero (Toi, 1996c).

One of the first comprehensive analyses of the economics of greenhouse gas emission control is Manne and Richels (1992) *Buying Greenhouse Insurance.* Based on a series of highly stylized examples, further elaborated with the model *Global 2100*, Manne and Richels argue that, given the large uncertainties, it is economically rational to abate more than a best guess analysis would suggest (Parry, 1993). The prime reason for this is risk aversion (Toi, 1995), and the additional action could be called a risk premium (Arrow, 1970, Pratt, 1964).

Commercial insurance of natural hazards is largely restricted to tropical cyclones and extratropical storms (noting that the degree of cover in the tropics is generally lower than in the higher latitudes) while river floods are typically insured, if at all, with some form of government support (Albala-Bertrand, 1993, Toi, 1996b).

The last couple of years, Greenpeace (Greenpeace, 1994, Leggett, 1993a, Leggett, 1993b) started alarm bells ringing over the rapid increase in damage and claims due to natural hazards, which would, if not the first sign of climate change, be at least a warning for a warmer future (Berz, 1987, Conrad, 1991, Dlugolecki, 1992).

3. The effect of climate change on the frequency and hardness of natural disasters

Future behavior of extreme weather events is critical for insurance due to the financial effects that are generated by these risks. In this context, the effects of climate change on the frequency and hardness of natural disasters are vital information in order to restructure the portfolio of insurance products.

The annual average number of major weather-related natural catastrophes worldwide has increased significantly from about 1.5 in the 1950s to 3.7 over the last 10 years. In addition to the increase in the frequency of weather-related natural catastrophes, the global economic impact of these events has also increased significantly.

For example, between 1980 and 2008, extreme weather-related events represented €322bn (84%) of the €386bn overall losses caused by natural catastrophes in Europe. The economic impact of extreme weather events is well illustrated by the floods in central Europe in 2002 (see Table 1).

Table 1

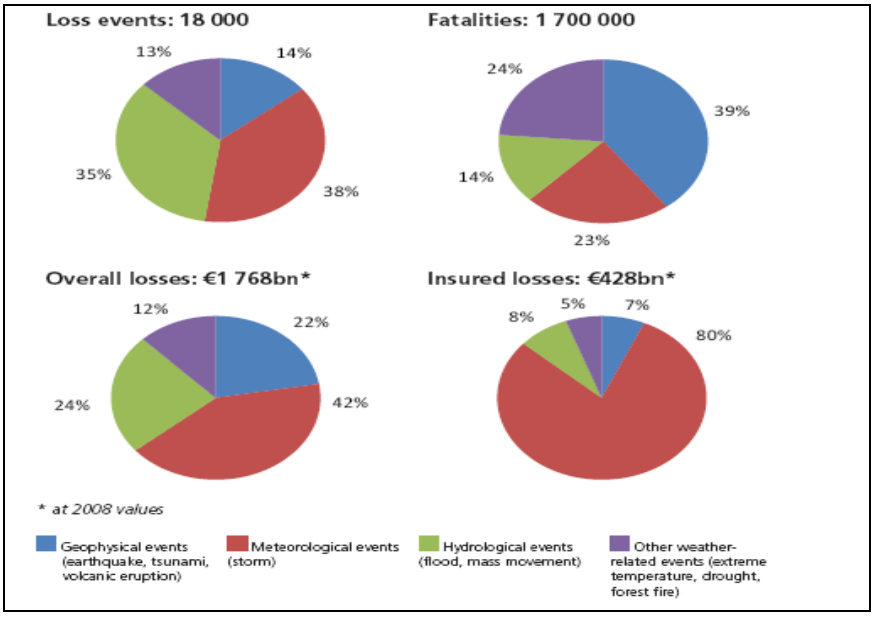
Costliest weather catastrophes in Europe – 1980-2009

Date	Event	Affected area	Losses (€m)* Insured	Losses (€m)* Total	Deaths
26.12.1999	Winter storm Lothar	Austria, Belgium, France, Germany, Switzerland	5900	11500	110
18-20.01. 2007	Winter storm Kyrill	Austria, Belgium, Byelarus, Czech Republic, Denmark, France, Germany, Netherlands, Poland, Slovenia, Switzerland, UK, Ukraine	4500	7800	49
25-26.01.1990	Winter storm Daria	Belgium, Denmark, Finland, France, Germany, Ireland,	4400	5900	94

Date	Event	Affected area	Losses (€m)* Insured	Losses (€m)* Total	Deaths
		Luxembourg, Netherlands, Norway, Poland, Sweden, UK			
12-20.08.2002	Floods, severe storm	Austria, Czech Republic, Germany, Hungary, Italy, Moldova, Slovakia, Switzerland	3500	16800	39
15-16.10.1987	Winter storm 87J	France, Norway, Spain, UK	2750	3500	18
27-28.12.1999	Winter storm Martin	France, Spain, Switzerland	2500	4100	30
3-4.12.1999	Winter storm Anato	Denmark, Germany, Latvia, Lithuania, Poland, Russia, Sweden, UK	2400	3000	20
25-30.06.2007	Floods, severe storm	UK	2200	3000	4
20-23.07.2007	Floods	UK	2200	3000	1
7-9.01.2005	Winter storm Erwin	Denmark, Estonia, Finland, Germany, Ireland, Latvia, Lithuania, Norway, Russia, Sweden, UK	2000	4500	18

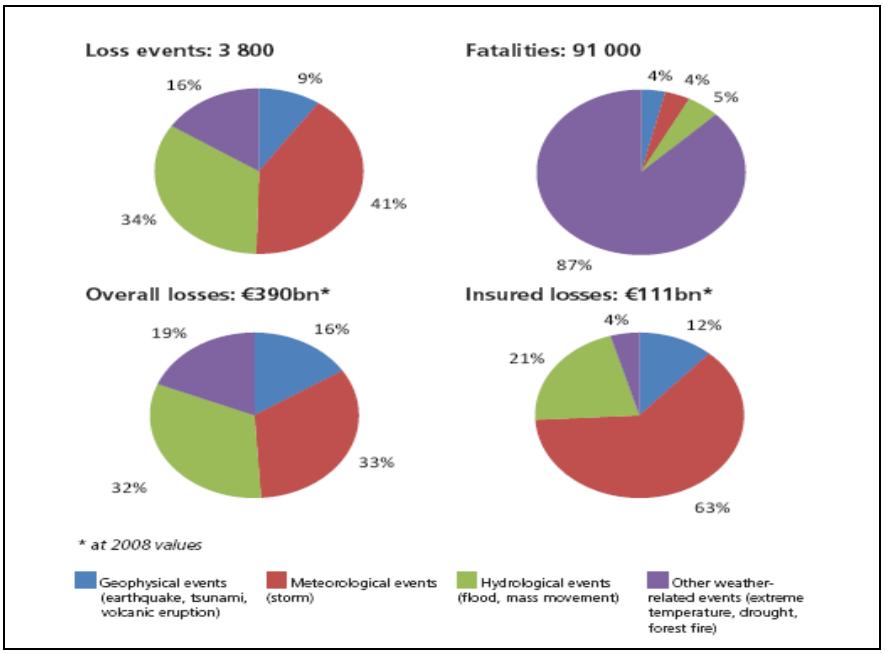
*Original values, not inflation-adjusted, as at October 2009.
Source: Munich Re, Geo Risks Research, NatCatService.

Worldwide, 86% of all natural catastrophes between 1980 and 2008 were caused by weather events such as windstorms, hailstorms, severe storms, floods and extreme temperatures (Figure 1). In Europe, the figures are even more striking. In the same period, 90% of all natural catastrophes were related to extreme weather (Figure 2).



Source: Munich Re, Geo Risks Research, NatCatService, as at January 2009.

Figure 1. *Natural catastrophes worldwide – 1980-2008*



Source: Munich Re, Geo Risks Research, NatCatService, as at May 2009.

Figure 2. *Natural catastrophes in Europe – 1980-2008*

While major natural catastrophes caused by extreme weather (for example windstorms, floods, extreme temperatures) have increased significantly in frequency during the last 50 years, major catastrophes with geophysical causes (for example earthquakes, tsunamis, volcanic eruptions) have remained relatively stable. These are clear indications that the growth in the occurrence of natural catastrophes is linked to globally observed climatic changes. Clearly, action is required to cope with the rising frequency, scale and economic impact of weather-related catastrophes.

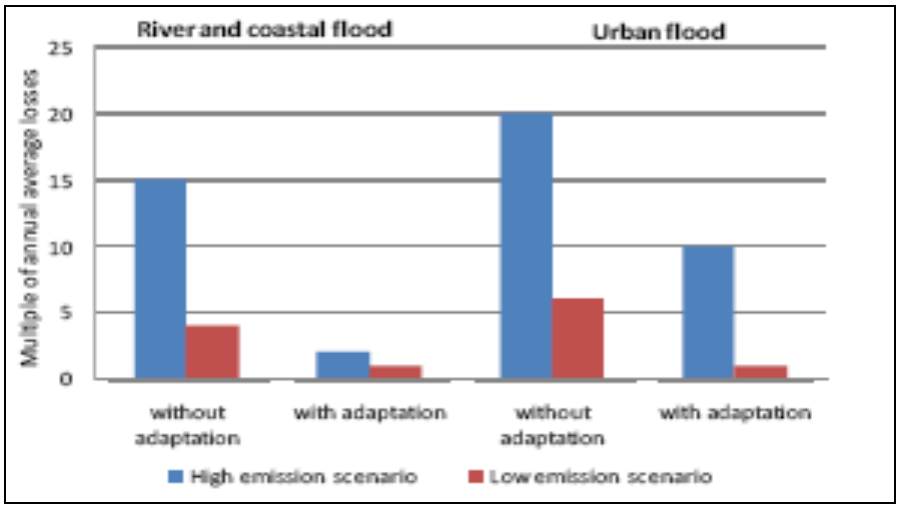
The higher frequency and severity of weather-related disasters are expected to lead to:

- a considerable rise in the risk of crop failure;
- a projected 86.000 extra deaths a year in EU member states;
- an increase in the number of disease cases of 20.000 a year by 2030 and of 25.000 - 40.000 by 2080.

The changing climate will also directly affect the agricultural sector (yields, habits etc.). For example, climate-related changes in crop yields are expected to vary between at least -10% in the Mediterranean countries and the south-west Balkans to +10% in northern Europe. The energy sector (cooling processes, demand etc.), tourism and water management will also be directly affected.

Fighting climate change can have a positive effect on the economy. In this sense, ideal would be for public authorities to apply a mix of both measures: to mitigate climate change and also to identify ways to adapt to the inevitable effects of these extreme weather phenomena.

The significance of mitigation and adaptation measures in addressing climate change can be illustrated by a study of UK floods carried out in 2005. According to the estimates (Figure 3), not investing in either mitigation (low emission scenario) or adaptation measures would multiply economic losses by 15 compared to a situation in which there had been investment in both measures. The ratio rises to 20 for urban floods alone.



Source: Adapted from "Financial risks of climate change", Association of British Insurers, 2005, based on estimates for the UK around the 2080s

Figure 3. *Effects of mitigation and adaptation on economic losses*

Also, investing in one prevention measure but not the other would still multiply the economic impact by a factor of 2 to 9 depending on the types of foods and the measures taken. As shown by figures 1 and 2, investment in mitigation particularly helps reduce the impact of urban foods. Investment in adaptation measures is especially useful in reducing the impact of river and coastal foods.

Urgent action is needed to reduce the losses that result from weather-related disasters.

4. The impact of climate change on insurance

Insurance is directly affected by climate change, since it is often insurers and reinsurers that take responsibility for dealing with its consequences.

The most apparent impact of climate change on the insurance industry is the expected increase in claims expenditure, as a result of the industry's pivotal role in the compensation of the financial losses incurred by insured households, farmers, energy providers, etc.

Climate change will have a direct impact on claims across a significant number of the industry's business lines, such as property, crop, livestock, business interruption, motor and health, but the insurance industry also faces other indirect effects which will challenge its profitability and business model.

The risk fund established by the insurance companies should offer the insurer the possibility to pay the damages, even after a large-scale catastrophic event. Because the adverse effects of climate change are becoming more frequent, the demand for insurance to cover those future losses will have an upward trend. Although this may increase the potential of insurance, insurers must consider a number of prudential rules.

The demand for insurance products will increase the risk exposure of insurers. Potential losses from disasters in areas with a high risk may be too large to be supported only by the insurance industry. Also in this area it is shown the "adverse selection", ie appetite to insurance products is higher for the insured which are aware that the producing of a catastrophic risk involves very large losses, compared with those who believe that losses will be small.

The insurance industry is innovative and adaptive, both in terms of new products that are offered to the market and through the protection mechanisms. In this context, insurers and reinsurers are working with authorities to identify long-term financial solutions to ensure coverage against the risks of natural events. An example would be that public authorities,

through the management of flood, provide a contractual guarantee of land holders in flooded areas to reduce exposure to risk.

The European Union wants the preliminary flood risk assessment, the first phase (voluntary) to implement the Flood European Directive, to be an excellent opportunity for Member States and a simple and consistent method of risk assessment.

Another solution identified by insurers is to create insurance plans or packages that combine a catastrophic risk with risks of adverse climate change. In this respect, the protection from extreme natural events is sold in the same package with insurance against earthquakes, in order to increase the number of the risk community.

Also, the insurance industry develops products that encourage, promote and facilitate actions that can reduce the emission of harmful gases and that can cope with inevitable risks of climate change (through adaptation). Insurance schemes may include, for instance, the motor vehicle insurance premium on the rule of consumption or reductions in insurance premiums for hybrid vehicles or dwellings suitable for the climate. Other schemes include new liability insurance products for energy companies that are investing in finding new alternative energy sources and are promoting projects based on reducing coal consumption.

These above mentioned innovations applicable in the insurance sector are still faced with the reluctance of shareholders or damage regulators regarding the impact of these products on the performance of insurance companies.

Finally, catastrophe losses resulting from major and complex risks can be addressed through pools of insurers. They are a form of cooperation (association) between multiple insurers (reinsurers) to complex hedging, such as those associated with nuclear power plants operation and whose frequency and intensity are poorly known. Also, catastrophic risks such as those to which reference was made, whose production would lead to damage of great value, can be the subject of underwriting oh the insurance-reinsurance pools.

In step with this trend, linked to compulsory house insurance business, since July 1st 2010, in Romania operates the Disaster Insurance Pool (DIP), a company resulted from the association of 13 insurance companies. Insurance policies are managed by DIP and sold by the insurance companies members of the Pool.

5. Conclusions

In recent decades there is an increase in the number of natural disasters which affect the natural environment and also the economic and social one, causing large damage to the individual or the community. In this context, insurance, through the protection instruments offered, can become a viable way to adapt to adverse climate change. However, insurance should not be a substitute for other measures of adaptation or a tool to finance these measures.

Creation of new insurance products and schemes aimed at protecting against the risks of climate change is one of the goals of insurance companies. The financial innovation in the insurance field allowed policyholders to better manage their risks in a volatile environment. On the other hand, apart from certain advantages, new insurance products need to address the imposition of prudential rules regarding the risk management of insurers or reinsurers.

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ANALYSIS OF ENERGETIC RESOURCES USAGE IN ROMANIA WITH GENERAL EQUILIBRIUM TECHNIQUES

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Abstract. *The work includes quantitative analysis of various types of energy resources used for electricity production in Romania. The goal of the analysis is identification of those categories of energy resources less used, though their increased use would be recommended, as well as pinpointing the categories of over-used energy resources in the production process. In article's introduction, I present several aspects regarding the methodological framework in the field of general equilibrium theory. Article's content represents a study case structured as follows: description of the general equilibrium model, model's equations, input data, results and interpretations. This research can be useful for decision-makers in the national energy sector as it contains recommendations for the increase or decrease of the use of certain energy resource categories, recommendations which resulted from quantitative modeling through general equilibrium techniques.*

Keywords: general equilibrium; equilibrium prices; equilibrium quantities; energy resources; national energy sector.

JEL Codes: C68, Q21, Q41, Q43.
REL Codes: 10J, 15F.

1. Introduction

General equilibrium theory represents an efficient quantitative analysis instrument on the impact of enforcement of economic policies in fields such as: fiscal policy, international trade policy, energy policies and environment protection policies. The beginning of the general equilibrium theory is chronologically situated in the year 1877, when the first researcher, Walras, studied the existence of equilibrium in an economy with several goods and the specific case of economies with simultaneous production processes and consumption processes. The period before the 1970's was marked by successive progresses regarding theory concepts, and major contributions were brought by Hicks (1939), Arrow and Debreu (1954).

After the 1970's, the general equilibrium theory evolved from a strictly theoretical research field to applied science, using real input data from national and regional economies. Numerical algorithms were created and developed to solve general equilibrium models – Scarf (1967), integration of algorithms in informatic programs dedicated to elaboration of applied equilibrium models – Brooke et al. (1988), Rutherford (1999), organization of model's input data as national accounts matrices – King (1985), diversification of applied general equilibrium models – Hudson and Jorgenson (1974), Whalley (1982), Capros et al. (1998). As for recent research directions in the theory of general equilibrium we mention: insertion in models of restrictions corresponding to environment protection policies as well as insertion in models of the representation of the trading process on the market of the pollution rights (green certificates) – Hill (2001), taking into account in the applied general equilibrium model suggestion process of corporate governance elements, of various social phenomena and, especially, of interdisciplinary-type elements – Faehn et al. (2004), development of models in stochastic environment, taking into consideration random evolutions and probability

distributions, markets in perfect and/or imperfect competition - Chichilnisky and Wu (2006), Crettez and Fagart (2009).

Creation of a general equilibrium model presupposes not only representation of modifications on the market through production and utility functions but also establishing equilibrium conditions. Starting from the results of the researches made by Mathiesen (1985), we intend to present in this article a specified general equilibrium model for the national energy sector. The following sections of the work include description of the research methodology, equations of the general equilibrium model, presentation of input data and, in the end, results, interpretations and conclusions.

2. Research methodology

The case study presented in this article is based on a general equilibrium model elaborated by Bohringer and Rutherford (2007). As compared to this reference model, there are the following main differences: the number and form of equations, description of the consumption activity, the way factor and goods aggregate were specified in production and utility functions, the way energy resources and other factors of production were configured, as well as input data and results obtained in equilibrium state.

The model in the case study represents a general equilibrium model for Romania's energy system, configured as component of the national economy system. Components taken into consideration for configuration, based on which we specified both economy's demand aspect and the production aspect, are as follows: two commodities (electricity good *EL* and the rest of goods produced in the economy and aggregate *Y*), ten factors of production, one representative consumer *RC* and three production sectors (for the aggregate good, for electricity good and for satisfaction of the representative consumer, by the final consumption). *Aggregate good* is produced with labor factor *L*, capital factor *K*, electric energy factor *EL*, other aggregate production factors *AF*, and it is consumed by the representative consumer. *Electric energy good* is produced with the help of labor factor *L*, capital factor *K*, energy resources *RE* classified, in their turn, into three types of thermal resources, two types of hydro resources, nuclear-type resources, and it is consumed by the representative consumer. *The representative consumer* consumes from aggregate good *Y*, from electric energy good *EL*, from labor factor *L* as free time and holds capital factors *K*, energy resources *ER*, other aggregate factors of production *AF* and labor force factor *L* as working time.

The most detailed configuration was made for *energy resource-type factors of production*. Energy resources taken into consideration are:

- Nuclear-type resources *NUCL*;
- Thermal-type resources, which are divided into three sub-categories: coal *CARB*, natural gas *GAZ* and crude oil *PTR*;
- Hydro-type resources are divided into two sub-categories: non-renewable hydro *HIDRO-NR*, which produce electricity in hydro-power plants with more than 10 MW capacity and renewable hydro *HIDRO-R*, which produce electricity in hydro-power plants with less than 10 MW capacity.

Figure 1 presents a synthesis of fluxes between producers, consumers and factors of production in the configured economy.

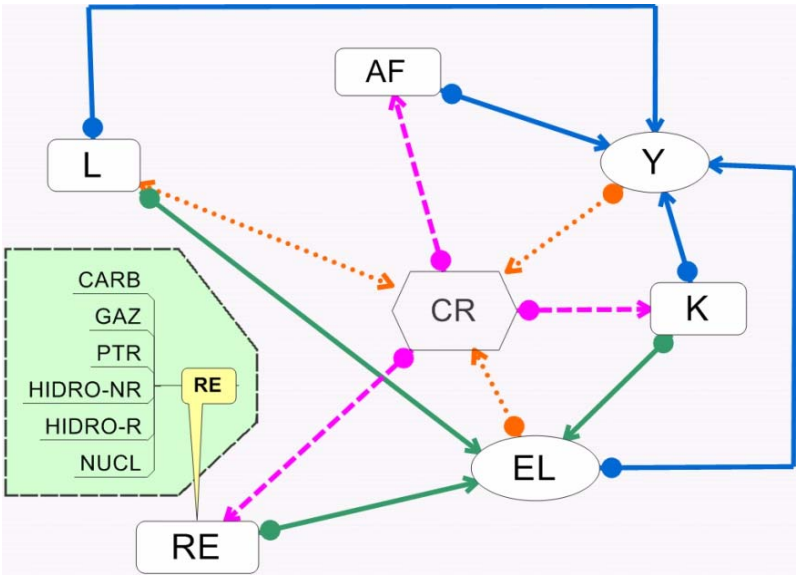

Figure 1. *Diagram of fluxes in the considered economy*

3. Equations of the general equilibrium model

The model is the case study has a total of fifteen equations. I use the following symbols for their explanation:

- Π^{Y} - profit resulted from the production of aggregate good Y;
- Π^{EL} - profit resulted from the production of electricity good EL;
- Π^{CR} - profit resulted from the production of representative consumer's satisfaction;
- CU_{Y} - unitary production cost of aggregate good Y;
- CU_{EL} - unitary production cost of electricity good EL;
- CU_{CR} - unitary production cost of representative consumer's satisfaction;
- P_{Y} - price of aggregate good Y, consumed for production of representative consumer's satisfaction;
- P_{EL} - price of electricity good EL, used as factor in production of aggregate good Y and also consumed for production of representative consumer's satisfaction;
- P_{L} - price of factor of production labor force L, used in production of aggregate good Y, of electricity good EL and also consumed for production of representative consumer's satisfaction;
- P_{K} - price of factor of production capital K, used in production of aggregate good Y and of electricity good EL;
- P_{AF} - price of other aggregates factors of production AF, used in production of aggregate good Y (others than labor force L, capital K, electricity EL);
- P_{CARB} - price of coal-type thermal resource factor of production used in production of electricity good EL;
- P_{GAS} - price of natural gas-type thermal resource factor of production used in production of electricity good EL;
- P_{PTR} - price of crude oil-type thermal resource factor of production used in production of electricity good EL;
- $P_{hidroNR}$ - price of non-renewable-type hydro energy resource, factor used in production of electricity good EL;

- P_{hidroR} - price of renewable-type hydro energy resource, factor used in production of electricity good EL;
- P_{NUCL} - price of nuclear-type energy resource, factor used in production of electricity good EL;
- Y – output quantity produced by aggregate good Y;
- EL – output quantity produced by electricity good EL;
- CR - level of satisfaction for representative consumer;
- $\overline{L^{CR}}$ - quantity of labor force L factor possessed by the representative consumer;
- $\overline{K^{CR}}$ - quantity of capital K factor possessed by the representative consumer;
- $\overline{AF^{CR}}$ - quantity of other factors of production AF used in production of aggregate good Y and possessed by the representative consumer;
- $\overline{CARB^{CR}}$ - quantity of coal-type thermal resource factor possessed by the representative consumer;
- $\overline{GAS^{CR}}$ - quantity of natural gas-type thermal resources factor possessed by the representative consumer;
- $\overline{PTR^{CR}}$ - quantity of crude oil-type thermal resource factor possessed by the representative consumer;
- $\overline{hidroNR^{CR}}$ - quantity of non-renewable-type hydro energy resource factor possessed by the representative consumer;
- $\overline{hidroR^{CR}}$ - quantity of renewable-type hydro energy resource possessed by the representative consumer;
- $\overline{NUCL^{CR}}$ - quantity of nuclear-type energy resource possessed by the representative consumer;
- V^{CR} - available income of the representative consumer.

$$-\Pi^{Y} \geq 0,\ Y \geq 0,\ y(-\Pi^{Y}) = 0 \quad \Leftrightarrow y(-p_{Y} + CU_{Y}) = 0 \tag{1}$$

$$-\Pi^{EL} \geq 0,\ EL \geq 0,\ EL(-\Pi^{EL}) = 0 \quad \Leftrightarrow EL(-p_{EL} + CU_{EL}) = 0 \tag{2}$$

$$-\Pi^{CR} \geq 0,\ CR \geq 0,\ CR(-\Pi^{CR}) = 0 \quad \Leftrightarrow CR(-p_{CR} + CU_{CR}) = 0 \tag{3}$$

$$P_{Y}\left[Y - \frac{\partial \Pi^{CR}}{\partial P_{Y}} CR\right] = 0 \tag{4}$$

$$P_{EL}\left[EL - \frac{\partial \Pi^{CR}}{\partial P_{EL}} CR - \frac{\partial \Pi^{Y}}{\partial P_{EL}} Y\right] = 0 \tag{5}$$

$$P_{L}\left[\overline{L^{CR}} - \frac{\partial \Pi^{Y}}{\partial P_{L}} Y - \frac{\partial \Pi^{EL}}{\partial P_{L}} EL - \frac{\partial \Pi^{CR}}{\partial P_{L}} CR\right] = 0 \tag{6}$$

$$P_{K}\left[\overline{K^{CR}} - \frac{\partial \Pi^{Y}}{\partial P_{K}} Y - \frac{\partial \Pi^{EL}}{\partial P_{K}} EL\right] = 0 \tag{7}$$

$$P_{AF}\left[\overline{AF^{CR}} - \frac{\partial \Pi^{Y}}{\partial P_{K}} Y\right] = 0 \tag{8}$$

$$P_{CARB}\left[\overline{CARB^{CR_{PUB}}} - \frac{\partial \Pi^{EL}}{\partial P_{CARB}} EL\right] = 0 \tag{9}$$

$$P_{GAS}\left[\overline{GAS^{CR_{PUB}}} - \frac{\partial \Pi^{EL}}{\partial P_{GAS}} EL\right] = 0 \tag{10}$$

$$P_{PTR}\left[\overline{PTR^{CR_{PUB}}} - \frac{\partial \Pi^{EL}}{\partial P_{PTR}} EL\right] = 0 \quad (11)$$

$$P_{hidroNR}\left[\overline{hidroNR^{CR}} - \frac{\partial \Pi^{EL}}{\partial P_{hidroNR}} EL\right] = 0 \quad (12)$$

$$P_{hidroR}\left[\overline{hidroR^{CR_B}} - \frac{\partial \Pi^{EL}}{\partial P_{hidroR}} EL\right] = 0 \quad (13)$$

$$P_{NUCL}\left[\overline{NUCL^{CR}} - \frac{\partial \Pi^{EL}}{\partial P_{NUCL}} EL\right] = 0 \quad (14)$$

$$V^{CR}\left[P_K \overline{K^{CR}} + P_L \overline{L^{CR}} + P_{AF} \overline{AF^{CR}} + P_{RE} \overline{RE^{CR}} - \frac{\partial \Pi^{CR}}{\partial P_Y} CR - \frac{\partial \Pi^{CR}}{\partial P_{EL}} CR - \frac{\partial \Pi^{CR}}{\partial P_L} CR\right] = 0 \quad (15)$$

In any sector where a strictly positive quantity is produced, profit must be zero, or, if the profit is negative, then the quantity produced by the respective sector is zero, meaning production activity gets halted. Equation (1) represents the condition of zero profit for production sector of aggregate good Y, equation (2) represents the condition of zero profit for the production sector of electricity good EL, while equation (3) represents the condition of zero profit for production sector of representative consumer's satisfaction CR.

For any good or factor of production with strictly positive price, offer surplus is zero (the produced quantity equals the demanded quantity from the respective good/factor), or, if there is offer surplus as compared to demand, the price of the respective good/factor is zero. Equation (4) represents equilibrium condition for the market of aggregate good Y, equation (5) represents equilibrium condition for the market of electricity good EL, equation (6) represents equilibrium condition for the market of labor force L factor, equation (7) represents equilibrium condition for the market of capital K factor, equation (8) represents equilibrium condition for the market of other factor of production AF used in production of aggregate good Y, while equations (9), (10), (11), (12), (13) and (14) represent equilibrium condition for the market of RE energy factors. Hotelling's law is used for all these equations, numbered from (4) to (14), to express consumptions of goods and factors using derivates of profit functions. Thus:

- In equations (4) and (15), $\frac{\partial \Pi^{CR}}{\partial P_Y} CR$ represents overall consumption of good Y for production of representative consumer's satisfaction;
- In equations (5) and (15), $\frac{\partial \Pi^{CR}}{\partial P_{EL}} CR$ represents overall consumption of good EL for production of representative consumer's satisfaction, while $\frac{\partial \Pi^{Y}}{\partial P_{EL}} Y$ represents overall consumption of good EL for production of output Y;
- In equations (6) and (15), $\frac{\partial \Pi^{Y}}{\partial P_L} Y$ represents overall consumption of factor L for production of output Y, $\frac{\partial \Pi^{EL}}{\partial P_L} EL$ represents overall consumption of factor L for

production of output EL, while $\frac{\partial \Pi^{CR}}{\partial P_L} CR$ represents overall consumption of factor L for production of representative consumer's satisfaction;

- In equation (7), $\frac{\partial \Pi^{Y}}{\partial P_K} Y$ represents overall consumption of factor K for production of output Y, while $\frac{\partial \Pi^{EL}}{\partial P_K} EL$ represents overall consumption of factor K for production of output EL;
- In equation (8) $\frac{\partial \Pi^{Y}}{\partial P_{AF}} Y$ represents overall consumption of factor AF for production of output Y;
- In equation (9) - (14), $\frac{\partial \Pi^{EL}}{\partial P_{RE}} EL$ represents overall consumption of factor RE for production of output electricity EL,
where $RE \in \{CARB, GAS, PTR, hidroNR, hidroR, NUCL\}$.

For every consumer with strictly positive income which he spends for acquisition of goods produced in economy, the difference between the value of initial equipment with factors of production and the value of consumption is zero, thus consumer's income is zero. Equation (15) represents the equilibrium condition for the representative consumer's income.

4. Input data of the general equilibrium model

Input data based on primary data were used for the configuration of the general equilibrium model. The data were taken from official sources, main references being the Romanian Statistical Yearbook (2009 edition) and the report published by the Romanian Energy Regulatory Authority – ANRE (2009 edition).

Data from the following chapters of the Romanian Statistical Yearbook were taken over: 3rd chapter – labor force market, 4th chapter – population's revenues, expenditures and consumption, 11th chapter – national accounts, 12th chapter – investments and tangible assets, 15th chapter – enterprise activity, 16th chapter – industry and constructions.

In addition, the report published by the Romanian Energy Regulatory Authority was source of data on average prices for energy for retail and wholesale market, quantities of electricity traded on the wholesale market, the structure of hydro energy, the value of green certificates used in Romania in 2008.

Table 1 presents synthesis of input data used to obtain the results of the general equilibrium model.

Table 1

Matrix of input data for the general equilibrium model

Goods and factors of production	Production sectors (Transaction values, million RON)			Equipments (million RON)	Total on rows
	Y	EL	C	CR	
PY	447320.1		-408976.9		*38343.2*
PEL	-11109.8	11169.3	-3559.3		*-3499.7*
PC			881869.6	-881869.6	*0.0*
PL	-144623.6	-2043.1	-469333.4	617523.6	*1523.5*
PK	-220323.3	-6538.9		222676.0	*-4186.2*
PAF	-39158.4			39158.4	*0.0*

Goods and factors of production	Production sectors (Transaction values, million RON)			Equipments (million RON)	Total on rows
	Y	EL	C	CR	
PCARB		-2448.7		1898.9	*-549.8*
PGAS		-941.4		673.8	*-267.6*
PPTR		-69.1		24.5	*-44.6*
PHIDRO-NR		-140.9		140.9	*0.0*
PHIDRO-R		-7.9		194.1	*186.3*
PNUCL		-1294.6		1294.6	*0.0*
TOTAL ON COLUMNS	*32105.0*	*-2315.3*	*0.0*	*1715.3*	*31505.0*

Calculation of the value of *aggregate good output Y* (the positive value from the *Y* column in Table 1) was made starting from the gross added value per total economy, reported by the National Statistics Institute, from which the value of electricity was deducted.

The value of the *EL good output* (the positive value from the *EL* column of Table 1) was computed based on quantities produced through the six energy technologies and using average price for exploitation of electric energy on five main components of the wholesale market, according to data reported by ANRE.

For the calculation of the *input L* value in commodities production (the negative values from columns *Y* and *EL* of Table 1, row *PL*) we have used statistics on the number of employees in the energy sector/overall number in economy and statistics on their average salary.

Computing of the value of *input K* in goods production (negative values in columns *Y* and *EL* of Table 1, row *PK*) was based on statistics on the value of net investments and of tangible assets in early and late 2008.

The calculation of the *input RE* value in production of electricity goods EL (negative values in column *EL* of Table 1, rows *PCARB, PGAS, PPTR, PHIDRO-NR, PHIDRO-R, PNULC*) was started from the value of the electricity production applying an average value of efficiency of potential energy technologies, which turn inputs into outputs.

Estimation of the value for consumption of *aggregate good consumption Y* (negative value in column *C* of Table 1, row *PY*) was made by subtracting the electricity consumption value from the final consumption value in the Romanian economy, as reported by the Romanian *National Institute* of *Statistics* (INS).

The value of *EL goods consumption* (negative value from column *C* of Table 1, row *PEL*) was computed based on the electric energy balance published by INS and based on average electric energy consumption prices published by ANRE.

Calculation of the value of *equipment with factor L* (positive value from column *CR* of Table 1, row *PL*) was based on the values of L inputs in production of Y and EL goods, taking into consideration the L consumption as spare time, as well as payments for emigrants and or unemployed persons, calculated for the year 2008.

The value of *equipment with factor K* (positive value in column *CR* of Table 1, row *PK*) was calculated starting from the values of K inputs in production of Y and EL goods minus the value of net investments from foreign source, loans and foreign capital.

The calculation of the value of *equipment with factor RE* (positive value in column *CR* of Table 1, rows *PCARB, PGAS, PPTR, PHIDRO-NR, PHIDRO-R, PNULC*) was based on the values of RE inputs in production of EL goods, corrected with the value of energy resource imports.

As for input data for decomposition of representative consumer's provision with energy resources, *the energy potential from Romania's renewable sources* was taken into account. Renewable sources are very little used for production of electricity, as compared to the their potential, they being in the possession of the representative consumer at national level, thus highlighting unbalances on the energy resources markets.

5. Interpretation of the obtained results

The informational program GAMS (*General Algebraic Modeling System*) was created for the modeling of the general equilibrium model, more precisely the solver integrated in GAMS specially dedicated to elaboration of general equilibrium models, MPSGE *(Mathematical Programming System for General Equilibrium)*.

The results obtained in the equilibrium state are price vector for goods and factors of production, vector for produced quantities and the income level of the representative consumer. Table 2 presents synthesis of the obtained results.

Results' interpretation was made by comparing to the target value 1, an ideal value towards which results from the considered economy should tend to so that unbalances at the moment of analysis should be eliminated. The interpretation of the result regarding the balanced income level of the representative consumer is an exception from that rule.

Enforcement of economic, energy and/or environment policies are recommended for the increase of model's indices with subunit balance levels. Yet, in case of improper balance ratio one should take measures to lower the level of the respective index.

Table 2

Results in the equilibrium state for the general equilibrium model

Model Index	Results of the equilibrium model
Level of production in the aggregate good Y sector	0.987
Level of production in electric energy EL sector	0.98
Level of satisfaction of representative consumer CR	1.038
Price of aggregate good Y	0.932
Price of electric energy good EL	1.333
Price of labor force factor PL	1.001
Price of capital factor PK	0.995
Price of other aggregate factors of production PAF	0.991
Price of nuclear-type resource factor PNUCLEAR	1.082
Price of coal-type thermal energy resource factor PCARB	1.396
Price of natural gas-type energy thermal resource factor PGAS	1.512
Price of crude oil–type thermal energy resource factor PPTR	3.053
Price of non-renewable hydro energy resource factor PHIDRO-NR	1.082
Price of renewable hydro energy resource factor PHIDRO-R	0.044
Level of income of representative consumer CR	887.580

5.1. Interpretation of model's results for the EL electric energy good market

For the *price of renewable-type hydro energy* we got a very low equilibrium price as compared to the ideal equilibrium value, and based on this result, the increase in the use of this type of resource is recommended for electricity production, this resource being fully available in the possession of the representative consumer at national level. We present below the detailed interpretation of prices of the two sub-components of the hydro-type energy resource:

- *The price of the non-renewable hydro energy resource factor* – the value obtained from the model (1.082) is justified by the importance this sub-component in the total usage of the hydro–type resource in Romania in 2008: of a total value of RON *148,7* million for the input of hydro energy resource, 95% represents the value of the non-renewable-type input (RON *140,9* million, according to Table 1, row PHIDRO-NR, column EL);
- *The price of the renewable hydro energy resource factor* – value obtained from the model (0.044) is very low as compared to the ideal equilibrium price whose level is 1. This extremely low value is explained by the unbalance between the available value for productive consumption, which is in the possession of the representative consumer (RON *194.1* million according to Table 1, row PHIDRO-R, column CR), by *24.7* times higher than the real productive consumption value (RON *7.9* million according to the same table, Table 1, row PHIDRO-R, column EL). In consequence, the far from ideal equilibrium value triggers the *recommendation to increase the use of this type of resource*, so that balance could be created for both the price of this factor, and for the price system in the Romanian energy system. A possible action to take could be stopping of thermal-type imports which are not fully available from the possession of representative consumer and their replacement with renewable resources fully available from the possession of representative consumer.

As for other results of the model referring to energy resources, for the *price of thermal-type resources*, we've got for each of the three sub-components one value in equilibrium state. The price of each of the three components of the thermal-type energy resource is improper ratio as, in each case, equipment of the representative consumer is below the value of their use in the production process, and the rest of usage being covered from resource imports. The thermal-type energy resource which has the closest result to the ideal value in equilibrium state is *coal*, meaning the energy resource for which, according to input data, imports are the lowest as compared to natural gas-type or crude oil-type resources. Coal-type thermal energy is the most advisable to be used in the production process of electric energy of the three thermal resources, followed by the natural gas-type resource and the crude oil-type resource:

- *The price of the coal-type energy resource* is the closest value to the equilibrium as compared to the other two sub-components. The value resulted from the model (1.396) is explained by the fact that the share of imported coal-type resource was smaller than the corresponding shares of the other two thermal sub-components;
- *The price of the natural gas-type energy resource* – the value resulted from the model (1.512);
- *The price of the crude oil-type energy resource* is the farthest from equilibrium as compared to the other two sub-components (3.053);

The equilibrium price resulted for the electric energy good EL (1.333) is above the optimum equilibrium value, 1. This situation can be explained by the fact that the value of energy consumption exceeds the value of the energy production in economy, and excessive consumption, as to be expected, leads to a bigger value of the price than the correct market value. Through the electricity quantity was in excess in Romania in 2008, the year taken into consideration for the input data, and covered not only consumption but also part of the export, the difference between the average sale price of the electric energy set by producers and the average acquisition price of electricity paid by consumers took the general equilibrium results to a higher consumption value than the value of electricity production.

The level of production of the electric energy good EL is slightly below the optimum equilibrium value 1 (the obtained equilibrium value is 0.98). This result is correlated to the one obtained for the equilibrium price of the electric energy good, which was determined by a consumption value that went beyond production value. The value for the production level (0.98) should be higher in an ideal economy where all the markets of goods and production factors are in equilibrium, lacking excessive offer or demand.

5.2. Interpretation of model's results for representative consumer

For the level representative consumer's satisfaction, the resulted equilibrium value (1.038) is higher than the ideal value (value 1). This value is explained by the fact that possessions of the representative consumer, which represents his source of income, exceed the consumption made by him – which can be noticed in column CR from the matrix of input data (the total on column shows a surplus of possessions). Consequently, the representative consumer consumes as much as he needs and has reserves he could use to consume more, which makes the model to provide in the equilibrium state a supraunitar aggregate index of satisfaction.

The level of income of the representative consumer (RON *887.580* million) represents a calculation based on the information regarding the representative consumer possessions of various factors of production considering the equilibrium prices of those factors.

5.3. Interpretation of model's results for the aggregate goods market

Other equilibrium values, associated to the rest of the consumption and production activities, aggregate at the economy level (the price of the aggregate good Y, the price of used factors for production of good Y, the production level in the sector of good Y) resulted well-balanced: either slightly above the ideal value 1, or slightly below the value 1. These results are explained by the fact that the aggregate configuration includes a very large part of the national economy, only the electric energy sector being separated and decomposed.

6. Conclusions

This study led to relevant numerical results on prices of various categories of energy resources, on the energy goods and on the electricity quantity produced by the national energy system and we consider that it is a useful research for decision-makers in the Romanian energy sector. Conclusions of this work consist in the following recommendations on the energy policy: the price of electricity is too high and it should be cut down by about 25%, the quantity of produced electric energy should be increased by approximately 2%. As for the use of energy resources, the increase by 2,000% in the use of renewable resources is top priority, followed by the drop of crude oil use by roughly 67%, and drop of the natural gas use by roughly 34%, of coal use by 28% and, finally, the cut down in the use of nuclear energy and non-renewable hydro power by 8% in each case.

Acknowledgements

This research was supported by a grant from UEFISCSU under the *National Program PN II*, exploratory *research project* "Integrated System of Multi-Criteria Analysis of Investments Efficiency in the Field of Renewable Energy Exploitation to Support the Sustainable Development", CNCSIS code: ID_1807, contract no. 799/19.01.2009

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INSURANCE AND REINSURANCE CATASTROPHIC RISKS IN ROMANIA: PRESENT AND PERSPECTIVES

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Abstract. *Romanian society, as is the entire world, is faced with a multitude of catastrophic risks, which existed and will continue to exist and affect both the population, economy and environment. More high frequency of the catastrophic phenomena and their intensity increased in the last two decades, have determined the competent authorities in Romania to increased emphasis on identifying the concerns of insurance solutions to cope with major losses occurring in such situations. In this article we propose to introduce catastrophic risk insurance system in Romania and opportunities for improvement.*

Keywords: catastrophic risks; insurance; reinsurance; insurance market; PAID – the Pool of Insurance Against Natural Disasters.

JEL Code: G22.
REL Code: 11C.

Introduction

Romanian society, as is the entire world, is faced with a multitude of catastrophic risks, which existed and will continue to exist and affect the population, economy and environment.

In compliance with global reinsurer Swiss Re, catastrophes are divided into two main categories: natural catastrophes and man-made catastrophes **(**Sigma no. 2/2009). Natural catastrophes means major events caused by forces of nature, such as: floods, storms, earthquakes, draught and fire caused by high temperatures, cold, frost, hail, tsunamis, as well as other natural catastrophes (avalanches, landslides), while man-made catastrophes are categorized in the study of the great global reinsurer that those events related to human activities. The latter category included events such as: large fires and explosions, aviation and space incidents, sea, lake and river incidents, railroad and road accidents, mining and quarry accidents, building, bridge and artwork crashes, various other incidents, terrorism include.

In Romania, according to article no. 2 of Law no. 32/2000 on insurance companies and their monitoring and the order of Insurance Supervisory Commission no. 4/2002 for the implementation of the norm on the coverage of natural catastrophes, the catastrophes category includes all types of risks assimilated to an event or a series of events which may engender substantial damages in a short period of time. They are considered natural catastrophes those events caused by the occurrence of the following natural disasters: earthquakes with a magnitude exceeding 6 degrees on the Richter scale, floods and storms.

It should be noted that, about 95% of deaths caused by natural catastrophes occur in under developing countries and in developing countries and economic losses caused by these phenomena are 20 times higher in these emerging countries than in developed countries.

World practice has shown that the occurrence of catastrophes can not be avoided, but can be managed and their effects can be reduced through a systematic process to contribute to minimizing the risk associated with these phenomena.

More high frequency of the catastrophic phenomena and their intensity increased in the last two decades have determined the competent authorities at global level and implicitly in Romania as an emerging country, to develop and implement different means of protection and defense against the dangers of any kind. These means of protection differ from country to country, from one geographical area to another, depending on several factors, such as: catastrophic risks faced by each country, the frequency of their occurrence and damage caused as a result of such risks, the degree of intervention and the availability of state dealing with such sensitive issues, ability of the state financial support some complex programs and not least the political class interests that are in office.

1. Main catastrophic risks in Romania and need of protection against them

Romania is one of the European states which are significantly exposed at natural disasters, especially in earthquakes and floods, but also other catastrophic natural risks like draught and landslides, storms, hail, cold and frost, snow avalanches etc.

The earthquake represents for Romania the major catastrophic risk, due to the fact that our country is located in an active area from this point of view, with seismic risk 3, according to Munich Re, which is one before the last risk area, according to the intensity, with a periodical cycle of 50 years.

In Romania, Vrancea region is the most active area in terms of seismic, but there have been movements in the crust also in Banat region (three earthquakes in 1991, with a magnitude of 5.7, 5.6 and 5.5 on the Richter scale, what caused the death of two people wounding 30 other, thousands of flood victims and thousands of damaged houses, two earthquakes on November 3, 2010 with 5.9 and 5.8 on the Richter scale respectively). Earthquakes vranceana most important are recorded recently at the November 10, 1940, magnitude 7.4 on the Richter scale, after which there were about 500 casualties and total losses of around USD 10 million and 4 March 1977 with a magnitude of 7.2 on the Richter scale, which caused economic loss of USD 2 billion (equivalent to about 5% of GDP) and many casualties, the most affected city being Bucharest. According to a report of the World Bank from 1978, Bucharest has cumulated 70% from the losses, respective USD 1,4 billion, as well as 1.391 dead people and 7.596 victims, which represents 90% from the total on the country. Therefore, the problem for Romania is Bucharest, which, together with Lisbon, are the only European towns characterized by Mexico City effect, which means that, because of the ground conditions, the earthquakes intensity is bigger in the respective area than in the areas more closed to the epicenter.

Another catastrophic risk for Romania is the floods. Annually, because of the floods, die on average 8 persons and thousands of areas are covered by water. To the floods are added landslides, which mean that more than 30% from the Romanian territory is exposed to this risk at a high level.

According to the information provided by the World Bank the assessment of the damages caused by the floods in Romania is as follows: material losses in the period 1997-2001 were around USD 528,9 million; in 1999 – about USD 132 million and in 2000 – about USD 98.3 million. Related to the floods in 2005, the total losses were around EUR 1.5 billion and represented 1.9% from PIB of this year, being the most expensive, considering the damages. From these, only 1% from the total losses is insured, respective around EUR 16 million (ICAR, 2007). It follows that in the task of the state is the biggest part of the expenses of the recovery of the damaged objectives and only 1% is to be supported by the Romanian insurance companies.

Floods in 2010 caused damage of around EUR 700 million, which exceed 0.6% of GDP in Romania, which are the most significant losses after the 2005 floods.

In addition to the action of natural forces, assets and properties in Romania and human activity can be affected by some unexpected events, which have a subjective and are related to human behavior, generally called man-made catastrophes or accidents.

Even if the number of natural catastrophes is lower than the man-made ones, taking into account the number of deaths caused by them and their major economic impact on society, that need protection is required primarily for natural catastrophes, but without completely neglecting man-made catastrophes.

The mandatory houses insurance in Romania was canceled in 1995, by the appearance of the Law no. 136 on the insurance and reinsurance activity in Romania, when the insured houses were around 90% from the total number of houses. After 14 years from that cancellation, as at 1 July 2009, the percentage of the facultative insured houses is around 25% from the total estimated to 8.3 million houses, according to the information provided by the Insurance Supervisory Commission (XPRIMM, 2009). This means a difference of 75% non-insured optionally part, which means that there is no protection by insurance, and the state cannot support at a full extent the recovery after a potential disaster, through the funds from the state budget.

As an example, in the state budget law for 2007 it was proposed a level of the reserve fund of RON 128,7 million (0,2% from the total expenses of the state budget) and a level of the intervention fund of RON 12,0 million (0.019% from the total expenses of the state budget) ; during 2007 the level of the two funds was extended several times, and as at the end 2007, the two funds reached around RON 2.5 billion, half representing agriculture affected in 2007 (the Law of the State Budget, 2006). Similar and even smaller share of the two funds in the total amount of state budget expenditures were recorded in the following years: 2008 (0.0017% overall, of which: 0.008% for the reserve fund and 0.009% for the intervention fund), 2009 (0.18% overall, of which 0.16% for budget reserve fund 0.016% for intervention fund) and 2010 (0.2% overall, of which 0.18% for reserve fund and 0,016% for the intervention fund) (the Law of the State Budget, 2007, 2009 and 2010).

2. Representative indicators of the property insurance market in Romania

Property Insurance are specified in Annex 1 of Law no. 403/2004 amending and supplementing Law no. 32/2000 on insurance companies and insurance supervision, on classes of insurance that can be charged by insurance companies, as part of general insurance, namely, property insurance include class 8 fire insurance and other insurance called natural catastrophes and class 9 named other property insurance. Class 8 includes property and property damages caused by: fire, explosion, storm, other natural phenomena outside the storm, nuclear energy, land subsidence, while Class 9 covers damages to property and goods when such damage are caused by hail or frost, theft, other than those referred to in Class 8.

As can be seen in section 2, the real demand of catastrophic risk insurance products is low due to poor purchasing power of individuals, the lower its belief about the usefulness of insurance and not least the lack of compulsory insurance for catastrophic risks before 15.07.2010.

Size low of the real demand for catastrophic risk can be expressed through two representative indicators of the insurance market, that penetration degree of the insurance and insurance density.

Thus, at the end of 2007, penetration degree of the property insurance, calculated as the ratio of gross written premiums for property insurance and gross domestic product reached 0.20% compared to 1.4% as the penetration degree of general insurance in the same year. On 31.12.2007, the gross written premiums in the insurance market accounted for 7175.8 million RON, of which gross written premiums for general insurance totaled 5.727 million RON, and

from them the gross written premiums for property insurance totaled only 841,915,189 RON (Insurance Supervisory Commission, Annual report 2007).

It follows that, by property insurance contracts concluded by the insurance – reinsurance companies in Romania in 2007 to concentrate at their disposal in the form of insurance only 0.2% of gross domestic product of Romania.

Property insurance density, calculated as the ratio of gross written premiums for property insurance and population, was only 10.83 euros per capita and is the average financial effort made per capita in order to pay property insurance premiums. The value of this indicator for property insurance is about 10 times lower than the level of insurance density calculated from the insurance market in 2007 (92.29 euros / capita).

The value of gross domestic product RON 412.761,5 million taken in the calculation of insurance penetration degree and the number of Romanian citizens from 1 July 2007 to 21.537.563 inhabitants are those listed in the Romanian Statistical Yearbook 2008. Exchange rate EUR / RON as at 31.12.2007 is available at the end of 2007 of 3.6102 (http://www.bnro.ro).

The two indicators representative of the insurance market, calculated based on data and information from the Insurance Supervisory Commission reports for 2008 and 2009, are presented in Table 1 below.

Table 1

Representative indicators of the insurance market in the period 31.12.2008 to 31.12.2009

Representative indicators of the insurance market	31.12.2008	31.12.2009
Gross premiums written for property insurance (RON million)	1,057.8	1,098.5
Gross premiums written for general insurance (RON million)	7,068.2	7,241.6
Gross premiums written on the total insurance market (RON million)	8,936.3	8,869.7
Gross Domestic Product (RON million)	503,958.7	491,273.7
Population (million inhabitants)	21.5	21.46
Exchange rate EUR/RON	3.9852	4.2282
The penetration degree of property insurance (%)	0.21	0.22
The penetration degree of general insurance (%)	1.40	1.47
Property insurance density (EUR / capita)	12.35	12.11
Insurance density at the insurance market level (EUR/capita)	104.30	97.75

Source: developed by author.

From the table can be noted that, although insignificant decrease as at 31.12.2009 compared to 31.12.2008, the two representative indicators of the property insurance market record values close to those recorded in 2007, which shows relatively constant evolution of these indicators and the small size of the actual demand for catastrophic risk in Romania. After 10 years of the waiver of the requirement to ensure housing in Romania, the effects of the imposition of optional insurance are conclusive, while the insurance was compulsory, the percentage of housing provided was about 90% of the total, and once it became optional, the number of owners who have a home insurance policy declined, reaching 4.3% in 2005.

3. Compulsory insurance of houses in Romania: present and perspectives

Starting from the large imbalance between the risks faced by Romania and lower level of enrollment in optional insurance of housing, that the only viable solution to the housing finance potential damage caused by natural disasters is compulsory insurance.

Therefore, the insurance solution of the catastrophic risk for Romania was that the reinsurance pool, composed by the local authorized insurers, which are to subscribe in a first

stage that risks and continuing with retrocession, until a satisfactory risk mitigation is obtained.

The discussions as regards the introduction of a compulsory insurance system of houses were launched in Romania in 1995 and after a long period of debate, in November 2008 was promulgated the compulsory insurance law for houses against earthquake, landslides and floods (Law no. 260/2008). Compulsory enforcement of housing has been delayed several times and its official start was July 15, 2010. Since that time the approximately 8.3 million house owners must purchase a compulsory insurance policy until 15 January 2011. Otherwise, fines are set between 100 and 500 RON.

Under Law no. 260/2008, in November 2009 was established the Pool of Insurance Against Natural Disasters (PAID), which began operations on 1 February 2010. PAID was created as an insurance-reinsurance company with a capital of 4.5 million EUR, by the participation of 13 insurance companies from Romania, from the 16 companies interested to conclude insurance policies for houses.

It is surprising that reputable companies from the insurance market have not invested in PAID at the time of its formation, arguing the decision on account of the recommendations made by them on the amendments to be made to the compulsory insurance law.

The compulsory insurance of houses is covering the risk of earthquake, landslides and floods, for every building which is considered as a house. The maximum insured amount is EUR 20.000 for houses type A and EUR 10.000 for houses type B. The premium is EUR 20 for houses type A and EUR 10 for houses type B. Therefore, all house owners, individuals and legal entities will have to insure their houses against the risk of flood, earthquake and landslides. For an annual premium of EUR 10, respectively, EUR 20 they will receive a maximum compensation of EUR 20,000.

For real protection portfolio, PAID enjoy a surplus reinsurance program type of damage. PAID enjoy an excess of loss reinsurance program. Placement of this program was supported by the four leading national and international brokers, such as: Aon Benfield, Guy Carpenter, Willis Re and Stellar Re. Reinsurance program is active and is placed 100%, among reinsurers participants being Swiss Re, Partner Re, Sirius, Transatlantic, Kiln and Lloyds unions. Effort reinsurance premium payment was made from PAID funds, with the Insurance Supervisory Commission help.

The main problem is that Romania's population is informed only to a limited extent on the benefits of house insurance. Insurance companies try to raise public awareness on the need to conclude a voluntary insurance, to cover the difference between the actual value of the housing and maximum amount of 20.000 EUR received by compulsory insurance.

In case of a major catastrophic event, the government's financial exposure is estimated by the World Bank at around 2 billion EUR, in a penetration degree of compulsory house insurance of 100%, which will not be for at least the next two years. For the first year of the PAID, is expect to a penetration degree of 40%, although the most important aspect is that people do not perceive it as a compulsory insurance charge, but as a tool for minimum financial protection in case of the disasters.

Since the project phase, the law has sparked much controversy from the public, insurers and other institutions. The main concern of improving the system covers the following aspects:

- modification of both the amount of compulsory insured and the insurance premium, depending on the size of dwelling, replacement costs and inflation and in relation to the maximum possible loss and need reassurance. In current conditions, the system can cover only a portion of the funds needed for reconstruction of a natural disaster.
- lack of tax deductibility,
- limited participation among insurance companies in the market,
- providing houses insurance in seismic risk class 1 shall be made only after completion of work to strengthen their,

- regulating the mode of payment of compensation, that compensation will be paid by insurers and not by PAID,

and lack a clear financial support from the government, as a guarantee or loan for reinsurance premium.

For starting PAID, it could not be a government loan, the only viable option is to maintain a reinsurance program to provide minimum solvency requirements. In light of the introduction of Solvency II, PAID solvency problem occurs and while growing insurance portfolio will be allocated increasing amounts of reinsurance to adapt to the new requirements imposed by that directive. In the future, there will be major problems with reinsurance to meet the requirements of Solvency II and the government loan question to be addressed. The granting of credit lines guaranteed by the State should be an obligation of the Government, not just an opportunity on his part.

The draft amendment of Law no. 260/2008 which contains amendments to the insurance industry are under discussion in Parliament of Romania. Resolving these issues will clarify some aspects required by insurers that have contributed to the establishment of PAID and will rouse the interest of other companies in the market to invest in PAID.

Conclusions

The controversial law on compulsory insurance against natural disasters houses in Romania, which entered into force since July 15, 2010, means a starting point for a proper management of the catastrophic risks in Romania, which will be further improved, based on the realities of the Romanian society as related to the catastrophic risks.

All the measures which were taken in Romania, up to now, in respect of the catastrophic risk management will come to the conclusion that, only by a common effort of all the institutions with responsabilities in the management of the situations generated by the natural dizasters, will increase the capacity of our country to cope with the disasters, which existed and will continue to exist.

To the extent that PAID will be able to buy reinsurance to the level required by Solvency II or if it will be able to allocate more capital to cover catastrophic risks as required by the directive, then Romania will qualify for the largest reinsurance program in Europe, in terms of reinsurance capacity.

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THE IMPACT OF THE IMF LOAN ON NATIONAL POLICIES

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Abstract. *Just three years after becoming a member of the International Monetary Fund (IMF), Romania had access to financial resources of the Fund, the last loan being approved in 2009. This study aims at highlighting the economic situation of Romania in the period before the agreement with the IMF, the conditionality imposed for the loan and the economic consequences of the agreement on national policies.*

Keywords: IMF; stand-by agreement; national policy; macroeconomic indicators; public debt.

JEL Codes: H30, H60, E30, E61.
REL Codes: 8A, 13A.

1. Introduction

Once becoming a member of the IMF in 1972, Romania had access to the financial resources of the Fund in return for the share participation in value of 1030.2 million SDRs.
The financial assistance received by Romania has resulted in ten non-concessional lending programs such as Stand-by Agreements.
Between 1972 and 1990, Romania has used IMF resources on three occasions, the total amount drawn from these loans being 976.6 billion SDRs.
After 1990, Romania has concluded 8 agreements with the IMF of which only one was preventive, with a duration of 24 months, without being drawn any amount.

Table 1

The history of Romania-IMF agreements

Agreement type	Date of approval	Expiration date	Amount approved (million SDRs)	Amount Drawn (million SDRs)
Stand-by	10/03/1975	10/02/1976	95.0	95.0
Stand-by	09/09/1977	09/08/1978	64.1	64.1
Stand-by	06/15/1981	01/14/1984	1,102.5	817.5
Stand-by	04/11/1991	04/10/1992	380.5	318.1
Stand-by	05/29/1992	03/28/1993	314.0	261.7
Stand-by	05/11/1994	04/22/1997	320.5	94.3
Stand-by	04/22/1997	05/21/1998	301.5	120.6
Stand-by	08/05/1999	02/28/2001	400.0	139.75
Stand-by	10/31/2001	10/15/2003	300.0	300.0
Preventive Stand-by	07/07/2004	07/07/2006	250.0	0
Stand-by	05/04/2009	03/15/2011	11,443.0	9,800.0

Source: IMF.

The first post-1990 agreement aimed at accelerating economic reforms, especially the financial and banking system reform. The memorandum was signed involving a gradual stabilization of the economy, through the gradual liberalization of prices, a lower inflation, devaluation of the exchange rate and the shift to a floating exchange rate, elimination of negative real interest rate, applying a tax system correlated with the collected revenues, stimulating the saving process and investment.
In 1992 a new agreement was concluded with the following objectives: inflation reducing, completion of corrective price movement, maintaining budget deficit at a level that can be financed without inflationary consequences, the recovery of the country's external position by improving the balance of payments situation and increasing foreign exchange reserves.
The third stand-by arrangement after 1990 included a systemic transformation facility, because Romania was in a transitional period and faced major imbalances regarding the balance of payments. Therefore, measures were related to the substantial devaluation of the official exchange rate, the elimination of state subsidies, the setting a positive real interest rates,the establishment of targetsfor the the restructuring oft he banking system and privatization.
Next Stand-by agreement concluded in 1997 regarded: maintenance of the budget deficit at a reasonable level, inflation rate reduction, foreign exchange market and utility prices liberalization, increased central bank reserves or suspension of discretionary appropriations.
Two years later, the government requested financial aid for its economic programs which provided the reducing of the current account deficit, lower inflation, fiscal consolidation and wage growth restriction, increased central bank's foreign reserves, reducing losses of public enterprises and greater involvement of the capital market in the process of attracting foreign capital.
In 2001 was completed the next arrangement with the IMF which was issued in several installments. Conditions were related to: supporting the process of disinflation and maintaining current account deficit, while accelerating structural reforms and strengthening economic growth prospects. Through the technical memorandum were agreed the following actions in the budget and fiscal policy field: continuous supporting process of reducing inflation, improving tax administration, allocating additional funds to support public investment and social protection to mitigate the impact of higher energy prices and restructuring of state companies.

2. Romania's economic situation during the period preceding the agreement with IMF

The negative evolution of the global economy in the recent years has had an impact on Romania, as well. The first signs of economic decline have been felt since the first quarter of 2008 when the Gross Domestic Product (GDP) registered a 0.1% decrease from the second quarter of 2008. GDP decline accelerated in 2009 reaching a reduction of 7.4% after the first nine months of the year. This situation was caused by the decrease of domestic demand by 13.7% (with a 24.3% decrease in imports) and that of foreign demand by 10.1%. Reduction in three consecutive quarters of GDP in 2009 highlights the fact that Romania also entered recession. It was also registered a decrease in foreign trade and a widening of the current account deficit in early 2009 that improved by the end of the year. The financing of this deficit was made at a rate of 94.1% from foreign direct investments which totaled 3.7 billion Euros, down by 4 billion Euros over the same period of 2008.
Worldwide economic recession was felt in Romania, which has extended an open economy, promoting international trade. This particularly affected the industry because of its exposure to international markets due to major foreign investments in this sector. Amid cuts in all sectors of economic activity, unemployment has risen, reaching 7.5% in November 2009. The severe contraction of the Romanian economy in 2009 was passed on inflation, as well. Thus, based on structural rigidities manifested in certain segments of the goods and services market,

labor market and the budgetary expenditures, the inflation rate had an upward trend reaching a peak of 6.89% in February 2009, being also influenced by the national currency depreciation against major currencies.
According to the consolidated general budget for 2009 appear the following changes against 2008: a decline in general government revenues as a result of reduced revenue collection from corporation tax, Value Aded Tax (VAT) and customs taxes, offset by increased revenue collection from income tax, excise duties and property taxes, and at the same time an increase in general government expenditure due to increased personnel expenditures, social assistance expenditure and interest expenditure and the level of spending on goods and services followed a downward trend, which has resulted in a deepening budget deficit. In the first months of 2009 the government issued domestic bonds with which financed, mainly, the budget deficit.
At the end of 2008 Romania had a level of public debt of 109.75 billion lei, representing 21.78% of the GDP. In the first six months of 2009, it increased by 12.6% to 123.61 billion lei, ie 23.27% of GDP. After the first two quarters of 2009, 64.10% of the public debt was denominated in domestic currency and 25.30% of the public debt was denominated in Euros. Other currencies had a share of 10.60% in Romania's public debt.
In the national economy, in 2009, significant changes have occurred compared with the previous year, in terms of macroeconomic indicators presented in Table 2, which shows a deterioration in the economic and financial situation.

Table 2

Comparative evolution of key macroeconomic indicators 2008/2009

– Percentage change from the previous year, % –

Indicator	2008	2009
GDP real growth (%)	7.3	-7.1
Final consumption	9.1	-8.2
Exports of goods and services	8.7	-5.5
Imports of goods and services	7.8	-20.6
Current account (% of GDP)	-11.6	-4.5
GDP deflator	15.2	2.8
Unemployment rate	4.4	7.8

Source: National Commission for Prognosis, Projection of main macroeconomic indicators for 2010-2014, November 2010.

Given the large share of public debt securities with short term maturity, implying an increased risk of debt refinancing in 2009, as well as the overall national economic situation, the Government sought financial support from international financial institutions in very advantageous terms compared to the costs associated with refinancing the bonds.

3. 2009 Stand-by Agreement

The most recent agreement with the IMF was approved in May 2009 for a period of two years, amounting to 11.443 billion SDRs. This loan will be repaid by 2016 according to the timetable set and the Romanian state will pay an annual interest of 3.5%.
The Stand-By Arrangement involves the release in several installments of the amount to Romania by the action plan implemented, as evidenced in periodic evaluations conducted by the IMF.
Thereby, Government's reform program aims to strengthen macroeconomic policies and to stabilize the financial market in spite of reduced inflows of private foreign capital in order to eliminate fiscal and external imbalances in Romania.
The Technical Memorandum of the 2009 Agreement provides the following conditionality:

- Ceilings evolution on foreign capital,
- Government spending,
- Government securities,
- Prohibition of external debt arrears.

This loan was contracted in order to stabilize the national economy, with corrective actions in the fiscal field and in the level of budgetary expenditures.

The amount outstanding by Stand-by agreement with IMF will be made available in eight installments over a period of 2 years. Thus, the first installment of 4.37 billion SDRs was released immediately after being approved Stand-by agreement with Romania, by the IMF Board, and was fully designed to strengthen the reserves of the Central Bank. In September 2009 was transferred the second installment of 1.718 billion SDRs of which half has entered the National Bank reserves and the other half went to the State Treasury. To dismiss the second installment, the IMF achieved the first quarterly assessment verifying compliance by the Romanian government of the established performance criteria for end-June.

Originally scheduled for late December 2009, the third installment of the 1.409 million SDRs was released in February 2010 with the fourth installment amounting to 760 million SDRs. This happened because the completion of the second quarterly review in September 2009 found non-compliance to performance targets.

Following the quarterly review, issued in July 2010 the fifth installment of 768 million SDRs was released and used for financing the reserves of National Bank. Given the progress made on the criteria agreed with the Fund in September 2010 was held the sixth installment of the agreement worth 760 million SDRs. The next installment scheduled for December 2010 will most likely be released in 2011 due to the fact that the Romanian authorities have not fulfilled any condition of the agreements with the IMF. So far, the total financial aid released to Romania amounts 9.8 billion SDRs.

The maturity of each installment shall be five years, during which interest becomes payable quarterly by direct debit of the SDRs account Romania opened at IMF. In addition to interest on the loan, the Romanian government will also pay a service fee of 0.5% in each draw and a commitment charge at the beginning of each period of 12 months.

The repayment of the loan actually starts in 2012, and payments on the agreement with the IMF in the years 2011 and 2012 will not be higher than 0.3% of the GDP, but the tip of payments will occur in 2013 when repayments will reach nearly 3% of the GDP.

Table 3

The repayment chart of the IMF loan (billion Euros)

The year	2009	2010	2011	2012	2013	2014	2015	2016
Payment	0	0	0	1.48	4.91	4.89	1.58	0.12
Interest	0.13	0.34	0.41	0.4	0.3	0,11	0,02	0.001
Total	0.13	0.34	0.41	1.88	5.21	5	1.6	0.121

Source: IMF.

4. Consequences of IMF loan on national policies

Throughout the national economy, in the first half of 2010, the GDP fell by 1.5% over the same period of 2009. Furthermore, the economic growth, in the first quarter of 2010, continued the downward trend, being 0.3% lower than at the end of 2009. The National Commission for Prognosis estimated for 2010 a reduction in real GDP of 1.9%, although the foundation budget for 2010 took into account a 1.3% increase following the implementation of restrictive policies with emphasis on the structural reform of the public wage system, of the public pension system with effect on reducing the budget deficit.

To reduce the budget deficit, the government took tough measures in the second half of this year on short term, when the rate of VAT increased by 5 pp simultaneous with reducing public sector wages by 25% and the expenditures on goods and services by 20%. These correlated measures had a major impact on consumption, but also on government consumption.
Thus, these economic consequences of such measures could include: higher prices for certain categories of goods and services, reduction of public and government consumption, fewer economic operators on the market, higher unemployment, destabilizing the exchange rate, deferred financing the budget deficit and not and not least increasing tax evasion.
The measures to reduce expenditures and increase revenues at the state budget led to a negative budget amendment in August, while the results of budget implementation in the first two quarters of this year shows that:
- the revenues amount collected at the general consolidated budget in the first half of 2010 was 0.1% lower than those collected in the same period of the last year due to the fact that major reductions in tax revenues collected were considerable. Moreover, the income from the main tax receipts are less than 50% of annual estimates considered to the budget foundation;
- the volume of general consolidated budget expenditures grew by 0.4% over the same period of the last year, although some categories of public spending fell. Thus, staff costs have registered, on the one hand, a decrease of 4.5% in the general consolidated budget, and on the other hand a 3.7% increase in the state budget, a situation triggered by the reorganization of certain public institutions, in December of 2009.
However, until the end of the first half of 2010 the personnel costs have exceeded 50% of the annual approved. A decrease recorded also the expenditures on goods and services but also investment expenditures.
The reducing of consumption has generated a process of disinflation, but higher taxes and excise taxes, and national currency depreciation against the euro in the second half of 2010, will lead to the end of the year, to an increase in the inflation rate amounted to 7.9%.
The worsening economic situation has also affected the labor market, so there is expect an increase in unemployment as a result of more severe budgetary adjustments in the second half of the year.
However, the policy on the financing of the deficit and refinance of public debt was focused on balancing internal and external contracted resources. Thus, half of third and fourth installments of the loan granted by the IMF totaling 1.1 billion SDRs were used in the first half of 2010 to finance the budget deficit and refinance public debt.
Regarding the public debt, as a result of increased issuance of domestic government bonds and external draw downs from the IMF granted loan in the first half of 2010, it increased by 22.85% from year-end 2009.

Table 4

Projection of main macroeconomic indicators 2010-2014

– percentage change from the previous year (%) –

Indicator	2010	2011	2012	2013	2014
GDP real growth (%)	-1.9	1.5	3.9	4.5	4.7
Final consumption	-3.3	1.3	3.4	3.7	3.9
Exports of goods and services	15.0	7.7	7.9	8.3	9.4
Imports of goods and services	10.6	7.3	7.7	8.1	9.6
Current account (% of GDP)	-5.7	-5.5	-4.9	-4.1	-4.0
GDP deflator	6.2	4.8	5.9	5.3	4.8
Unemployment rate	8.0	7.8	7.3	6.9	6.3

Source: National Commission for Prognosis, Projection of main macroeconomic indicators for 2010-2014, November 2010.

According to the National Commission for Prognosis, in terms of macroeconomic indicators presented in Table 4, until 2014, a gradual recovery is projected transposed into national economic growth, increased foreign trade, reducing the current account deficit, reducing inflation and the unemployment rate.

5. Conclusions

The justification of the IMF loan opportunity can draw contrary opinions. In our opinion, the real reason was, for the central bank, to avoid a financial crisis due to lack of immediate liquidity to international reserves.
As expected, the IMF intervention has also resulted in reducing public spending while increasing taxation, with serious implications, not only upon the main macroeconomic indicators. The effects of economic recovery measures agreed with the IMF will probably be felt in 2011, when there is expected an improvement in the key macroeconomic indicators.

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MANDATORY HOME OWNERS INSURANCE

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Abstract. *Floods in recent years, earthquakes, aging housing stock and the level of housing optional insurance coverage are factors that have led the authorities to initiate mandatory housing insurance system, out of fear of more devastating natural events. The study examines the current state of the system of mandatory home insurance in Romania, operating principles, sustainability, evolution compared with other European Union states, the insurer's perspective and influences involved in the system.*

Keywords: mandatory insurance; PAID; covered risks.

JEL Codes: G22, G28, Q54.
REL Code: 11C.

1. Romania – earthquakes and floods risks

Year 2010 is considered by many as a year of earthquakes. Since early this year, the first two months, three devastating earthquakes occurred. The most devastating earthquake occurred in Haiti, 7 on the Richter scale, causing the death of 200,000 people, followed by an earthquake in Japan, one in Chile and 7.2 degrees, 8.8 degrees, which conducted to killing 800 people and damages of 1.5 million homes, damages amounting to 20-30 billion USD.

The number of earthquakes is increasing in recent years from the founding moment of the global catalog of earthquakes in 1964, it was found that, annually, there are about 17 earthquakes with a magnitude of 7 on the Richter scale or higher.

Experts say that in Romania, earthquakes of great magnitude (more than 7 degrees) occur with a periodicity of 30-40 years. The last three major earthquakes occurred in the years 1838, 1940 and 1977. In 1977 the earthquake (7.3 on the Richter scale) killed 1,500 people, mostly in the capital, and about 35,000 houses collapsed. In Romania there are about 3,000 buildings and unconsolidated already affected by the earthquake of 1977, almost 1000 in Bucharest, the capital of Europe most exposed to catastrophic risks. Only in the capital are identified and classified in grades 1-3 over 5,000 seismic construction and consolidation is the average rate of about ten buildings per year.

All these data, combined with the fact that currently the Vrancea area is an active seismic zone, lead seismology experts(1) to warn determine the probability of an earthquake, with catastrophic effects, the possible magnitude higher than in 1977(2).

Besides earthquakes, the flood risk is significant too. According to data from Ministry of Environment's National Strategy for Flood Risk Management and Long-Term Environment in Romania, 900,000 people live in areas with high risk of floods, 88,000 homes and one million hectares of floodplain.

In 2009, flood damage amounted to 156.4 million lei, and in 2008, of 2.79 billion lei, according to data from Ministry of Environment. The floods in June 2010, 37 counties were affected, 7,200 houses and annexes, 12,500 people evacuated, 25 deaths, 33,500 hectares of arable land, 22,500 hectares of pastures and meadows, 5,700 hectares of forests, and 34 roads, 93 roads and 120 county roads. As a measure of protection against these risks have the possibility of concluding a voluntary insurance to cover this risk home cumulatively with

concrete actions in the state field[3] (reconstruction of dikes, consolidation of buildings, reforestation, etc.) which include measures such as introduction of mandatory home insurance, that covers such risks.

2. The emergence of mandatory household insurance

The first draft law on mandatory home insurance in 2002 set up a state insurance company to manage disaster risks. This solution has been dropped and the law now in force may be apply through an insurance pool made by the 13 private companies: Groupama Astra Uniqa, Generali, Ardaf, Euroins, Carpatica Asig, Grawe, Credit Europe, ABC Insurance , Certasig, City Insurance and Platinum Insurance.

According to the mandatory home insurance law (Law no. 260/2008), home owners are required to complete mandatory home insurance policies; the maximum insured amount is 20,000 euro for housing type A and 10,000 euro for housing type B.

The gross written premium of 10 euro/year is mandatory for B-type housing – construction with exterior walls of unburned brick or any other material not subject to heat treatment (35% of total), and 20 euros for housing type A – the structure of resistance concrete, metal or wood (65%). Mandatory home insurance comes into force at zero hour of the next day when the premium is paid- annually and in full. Owners who do not provide housing insurance risk a fine between 100 and 500 lei, and the finding of contravention and penalties are made by mayors and the persons empowered for that purpose.

PAID will send to mayors monthly list owners that have not signed contracts of mandatory house insurance and required premium due from each one. Mayor, through its specialized department will send within three days from the notification, letters list to the home owners with confirmation of receipt by the debtors, their postal costs will be debited quarterly by PAID.

If a person acquires ownership of a house, it is required to determine if there is an insurance policy available against natural disasters. If the house is assured through a PAD the new owner is obliged to notify within 30 days from the authentication property the insurer that issued that PAD.

Mandatory home insurance policy covers three major risks: floods, earthquake and landslides, not fires.

On the other hand, according to law on social housing for people who have, for various reasons, social assistance – 400,000 homeowners[4] – insurance premium is required from the local authorities and their budgets. Thus, almost 6.6 million euros will have to be paid by insurer's administration.

Companies will not issue policies for home owners with high seismic risk, or for those who have been recently affected by floods. Owners of homes affected by flooding have to rebuild their homes as they were before and then will be provided.

3. Start subscription for mandatory house insurance

The mandatory home insurance policies started on 15 July. Generali declares it has managed to sell the first mandatory home insurance policy in Romania to the Secretary of State in the Ministry of Administration, Mihai Capra. By September, after a period of two months from the start, 75,000 insurance policies have been sold, due to the holidays in this period according to Angela Toncesu, president of the Insurance Supervisory Commission.

According to data from PAID (Pool of insurance against disasters), 89% of policies are underwritten by type A and 75% were subscribed in urban areas, all the 13 insurance companies have issued policies, the first three being Astra, Generali and Groupama.

Policies subscription had an daily average rate of about 900 contracted per day, the rate of issuance increased from 100-200 contracted per day to 1,200-1,500 contracted daily; the goal is to achieve a rate of about 4,000 daily policies, in order to achieve the objectives.

PAID representatives estimated that will issue in the next six months one million policies, accumulating premiums about 16.5 million euros.

In this phase of the process, an important role is held by local governments who must provide information on all home owners. This step was made in a small proportion, 10%, obtaining the necessary information for only 2.8 million homes, from 8.3 million homes in the Register at the National Institute of Statistics, of which 4.5 million in urban areas and 3.8 million in rural areas.

The information must specify full name of the owner and, where appropriate, fiscal residence address, social security number or tax identification code of its record number of unique nominal role of agricultural register. By September they answered in the format requested a total of 637 localities, of which 26 municipalities, 74 towns and 537 municipalities, a total of administrational territory units 3227, 20%, representing 2.8 million homes, 22% of the total number of homes under National Institute of Statistic.

The best results were Mures county (55 cities), Bistrita-Nasaud (42), Satu Mare (37) and Valcea (33). At the opposite end stands Dambovita (0), Giurgiu (3) and Ialomita (3).

PAID representatives estimated that the database will be completed at a rate of 65% next year and completely by 2012.

The start was delayed issuing policies because PAID had not concluded the contract of reinsurance without which they could not sell policies. PAID officials have said that from July reinsurance contracts were signed with 14 major reinsurance companies.

Angela Toncescu, president of the Insurance Supervisory Commission wanted to clarify that the reason for the issue of mandatory policies is the heavy flooding this year, nearly 3,500 houses were damaged due to floods in summer this year – even if the package of changes to Law no. 260/2008 in parliament had not exited yet. The most significant legislative change is related to the compensation to be made by PAID, and not by the insurers. They can not pay because they do not retain the premiums, PAID does. They don't make reserves and can not be forced to pay damages(5).

4. Voluntary versus mandatory insurance

Mandatory home insurance policy is valid for one year and the insured sum is 10.000 euros, respectively 20,000 euros. Compensations are paid within 10-15 days after the claim file. To collect your money, you must notify your insurer within 60 days from the date the damage occurred. Otherwise, he is entitled to refuse payment of any damage.

Mandatory insurance covers only a small fraction of the value of the house, because the product is a component of social protection.

To ensure a higher value, insurers recommend a voluntary policy, which, besides the risk of natural disaster, covers other risks – explosion, fire, theft, floods caused by a pipe bursting and others.

The amount of optional home insurance policies depends on where the property is located. Thus, for example Prestige Insurance company offer for a house in Bucharest for an insured sum of 20,000 euros, the customer pays a policy of 30 euros per year. If the same house is situated in Vrancea, where there is a greater seismic risk, then the amount paid by the insured is higher – 50 euros.

For more risks insured, for a much greater insured sum, the policy is clearly more expensive; the owner of an apartment of three rooms located in District 3, in the capital, estimated at 90,000 euros, pays a premium of 109 euros annually.

Homeowners who have already completed an optional insurance must sign a mandatory policy. According to the Insurance Supervisory Commission (ISC) in this situation are over two million Romanians, who, until June 30, bought an optional home insurance. They are required to complete mandatory home insurance after the expiry of its validity, if it takes place after 15 January 2011. The 17 insurance companies that issue voluntary home insurances have more than 3,000 homes approved cases of damage from floods in recent

period. The amount of damages has reached 10 million euros, and the amounts already paid amounted to 330,000 euros.

Insurer's attraction for this type of product is not on the value of the policy, which is small for the B house type – 10 euros or 20 euros for a housing policy type A, but the large number of home owners obligated to pay this insurance, namely 8.3 million potential customers.

By mandatory home insurance law, the commission received by insurers authorized to sign the mandatory home insurance policies, can not exceed 10% of the premium collected.

Insurers have already launched several offers and expect to sell 10 to 15 voluntary policies, by cross-selling, for every 100 mandatory policies.

The insurance market in Romania in the first seven months of 2010, were recorded gross written premiums of 5.076 billion lei, down by 4.5% over the same period last year. On the general insurance segment were recorded gross written premiums amounting to 4.115 billion lei, down by 6.4% over the same period last year. On the other hand, life insurance increased by 6.4%; in the first seven months of this year, the insurance market has been paid damages of 2.7 billion.

On 30 June 2010, according to data from the Insurance Supervisory Commission, only 24% of the total of 8.3 million homes in Romania had completed an optional insurance policy. In absolute terms, this translates to only 2,000 homes of optional insurance contracts, which certifies such a low penetration of insurance in contradiction of the increased risks they are exposed to.

If compulsory insurance law would come into force before this year's floods, it would have been saved 246 houses and annexes. According to the Ministry of Regional Development, other 654 are in danger of collapse, and nearly 3500 were damaged by floods.

According to government estimates, the total damage caused by floods in June-July of this year amounted to EUR 876 million, of which the insurance market covers only a small part of 10 million euros, given the low coverage in the insurance of buildings destined for housing.

According to ISC-situation of gross premiums written from 30.06.2010 (lei):

Insurance class	30.06.2009	30.06.2010	Nominal Growth (%)	Share in general insurance class at 30.06.2009 (%)	Share in general insurance class at 30.06.2010 (%)
Insurance for fire and natural calamities	569,613,908	522,147,929	-8.33	15.09	14.85

- situation of gross claims paid on 30/06/2010 (lei):

Insurance class	30.06.2009	30.06.2010	Nominal Growth (%)	Share in general insurance class at 30.06.2009 (%)	Share in general insurance class at 30.06.2010 (%)
Insurance for fire and natural calamities	93,302,975	94,380,560	1.15	3.57	4.01

Insurance Supervisory Commission data (ISC) show that up to July 8, insurers have approved 1,700 new cases of damage by floods in the last period and have started the payment of damages. It is Allianz-Tiriac, ARDAF, Asirom, Astra Asigurari, BCR Asigurari, Carpatica

Asig, Euroins and Generali. The homes provided are located in the Northeast, Southeast and West.

For example, Astra Insurance announced it has opened 300 cases of damage to homes affected by flooding in the counties of Suceava, Neamt and Bacau, Botosani, the total compensation of about $ 2.5 million lei. Groupama Insurances has opened so far 234 cases of damage to homes affected by floods in the account which will pay compensation amounting to an estimated 1.98 million lei (about 461,000 euros), according to the company.

5. Mandatory home insurance at European level

At European level, there are seven countries that apply the mandatory home insurance law: Denmark, Netherlands, France, Belgium, Switzerland, Norway and Spain.

In December 2009 he was officially launched perils index, an index of European insurance industry losses caused by natural disasters and reinsurance. The construction of this index was attended by insurance companies ALLIANZ, AXA, GROUPAMA and ZFS, reinsurers Munich Re, PartnerRe and Swiss Re, and reinsurance broker Guy Carpenter.

Perils that independent authority will collect and centralize information occurred following natural disaster in a transparent manner to optimize portfolios of European insurers, and to have a realistic vision of natural disasters that may occur on the European continent. Index perils will increase reinsurance capacity on this segment facilitating the issuance of bonds for this type of catastrophic weather phenomenon, nowadays it is made on the basis of parametric data or processes resulting from risk modeling.

According to Munich Re study, between 1980 and 2008, natural disasters have cost U.S. $ 1.600 billion of insured losses were worth USD 465 billion. Meanwhile, for the period 2000-2008, total costs amounted to 750 billion dollars, of which insured losses amounting to 280 billion dollars.

In terms of catastrophic events of 2009, Europe recorded above average insured losses, Swiss Re has published the balance of insured and uninsured damages of natural disasters and technological products in 2009, amounting to 52 billion dollars, compared to 267 billion in 2008. Of the 52 billion dollars, 24 billion dollars damage is insured, including 21 billion dollars for natural disasters.

6. Conclusions

The positive part of the housing system of mandatory home insurance policies is the role of protection instrument against natural disaster risks.

Although the conclusion is the obvious need for such insurance, the issuance rate of the policy is low, 0.47% in two months and if the rate is maintained, will have a rate up to 1.5% at the end of six months. After that, comes the state and impose fines. PAID officials are more optimistic and expect that approximately 15-20% of homes will be insured in the first year.

Another important aspect is given by people aware of the need to ensure, in their willingness to pay a certain amount for a home insurance policy. According to a study of IRES - Romanian Institute for Assessment and Strategy .- "Public Administration and floods", which took place from 6-8 July 2010, on a sample of 1356 people aged over 18 years, 12% of Romanians said they can not afford to pay anything for such a financial protection product. Even if 93% understand the need for such insurance, 26% are not willing to pay a higher amount of 100 lei, 26% still do not know how much to allocate, 11% are willing to spend between 100 and 200 lei and only 3% are those willing to allocate more than 1,500 lei on a home insurance policy.

According to some opinions, mandatory insurance would be more effective if they would pay the insurance premium together with the taxes, and not compel the owners to address an insurer participating in the program. If the state could impose such a collection, the

insurance premiums would have to raise about 130 million per year, level that would be enough to compensate the maximum amount of compensation for 6,500 owners.

The advantages of this type of collection would be: much reduced costs due to double collection obligations settled by one payment, fast collection, collection security, the population is common to pay the state at time stuck for many years.

The disadvantage of collecting mandatory home insurance with tax house consists of a failure to acknowledge the need for such insurance, to correlate them with the financial situation of each home owner. Mandatory home insurance is not a tax, but a minimal measure of protection from natural disasters. Insurance premiums collected have a precise destination, creating the fund from which to pay damages in case of insured risks insured, unlike taxes, from which all public services are financed.

Notes

(1) According to Mircea Radulian, Scientific Director of the Institute for Earth Physics.

(2) 7.6 degrees on the Richter scale, according to another expert, Victor Mocanu, Professor at the Faculty of geology and Geophysics from the University of Bucharest.

(3) The objective of the national strategy of risk management – floods – in the medium and long term stipulates the reduction of the number of people exposed to the risk of potential floods, from over 900,000 inhabitants to 350,000 inhabitants in the year 2030, as well as to reduce potential damage gradual, from an average of 86 housing destroyed at 1000 ha flooded, at more than 40 homes destroyed at 1000 ha flooded, until 2030.

(4) 5% of the owners-according to the President PAID-Marius Bulugea.

(5) See Marinela Nemes, legal departement ISC.

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MOTOR' OWN INSURANCE – MARKET ANALYSIS FOR INDIVIDUALS

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Abstract. *Insurance coverage is a necessity for the modern world life and the motors' own damages insurance is a big part of the market. Analyzing the condition of the insurance market starting 2006 trough 2010, by the gross written insurance premiums and the losses compensations in the same period, the study reveals the impact of economic and financial crisis upon insurance market. Next, we analyze the present offer of the most important insurance companies.*

Keywords: motor's insurance; insurance premium; losses' compensation.

JEL Codes: G22, G28, Q54.
REL Code: 11C.

One of the most important insurance policy in Romania is motors' own damages insurance. The reasons why this insurance policy became one of the most known insurance are:

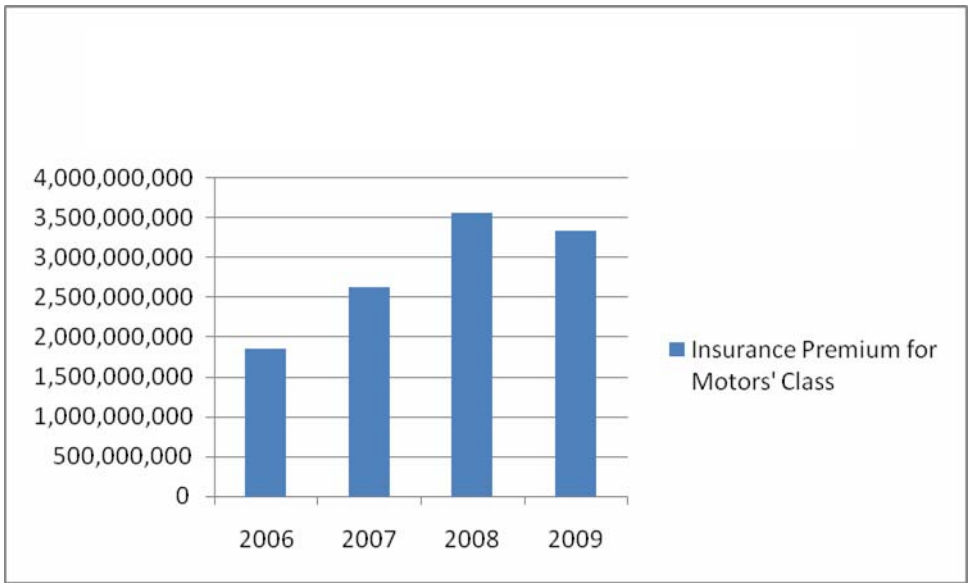
- The increasing of the credit/leasing industry – in the moment when the acquisition of a vehicle is financed by a third party, it requires the existence of an insurance policy in order to protect the vehicle possible damages,
- Most of the Romanian people decide to show theirs' financial power by expensive vehicles' acquisitions. In this situation, in order to maintain theirs' assets in proper conditions they bought insurance policies.

The facts of the Insurance Supervising Commission (ISC) prove the ascendant trend of the motors' own damages insurances up to 2008. Once with the financial crisis beginning, the insurance market entered into a descendent phase, motors' own damage insurance recording the same negative evolution.

Gross written insurance premiums for motors' class was in 2006 – 1,846,567,015 Ron, in 2007 – 2,619,859,216 Ron, in 2008 – 3,557,030,729. Since 2009 there was recorded a decrease to 3,330,988,688 Ron. The evolution may be observed in the next graphic:

The ascending level is observed: 42% increase in 2007, 35% increase in 2008 and in 2009 it appeared the signs of decreasing – 7% lower than 2008 level. But the decreasing is to be higher in 2010.

Following the statistics, the own motors' insurance market decreases in the 1ast quarter of 2010 to 598,9 mil. from 805 mil. in the same period of 2009 – that means a decrease of 206,1 mil. = 25.6%.



Source: author own calculation based on www.csa-isc.ro

Figure 1. *Insurance gross written premiums for motors' class 2006-2009*

The above decrease was caused by economic factors:

- The financial crisis reduced the financial resources both for individuals and companies, they decided to reduce theirs' costs by retaining the risks related to own vehicles. In case they choose for insurance they asked insurance companies for lower levels of protection, introducing of deductibles,

- The decreasing of the credit/leasing industry.

Insurance companies used motors' own damages insurance as marketing instrument in order to enlarge theirs' insurance market share. After selling such an insurance policy, insurance agents has the opportunity to sell other insurance to the same person. Solving professional a loss for the car, the insured person realize the necessity and the importance of the insurance. In that case, it is very possible to buy insurance for other needs that has not been identified before – home owners insurance, health insurance, life insurance.

So the decreasing of the motors' own damages insurance market is not a pleasant situation for insurance companies, they are fronting the risk of loosing other insurance policies also.

Insurance companies trying different strategies in these times, strategies thought for maintaining the existed portfolio. The profit for motors' own damages insurance policies is quite low, because the level of the losses' compensation is very high.

In 2006 the level of paid losses for motor's insurance was 1,357,020,440 Ron, in 2007 – 1,688,726,455 Ron, in 2008 – 2,455,509,627 Ron and in 2009 was 2,893,840,550 Ron.

This level of the losses can be noticed in the next graphic, following the same data from ISC.

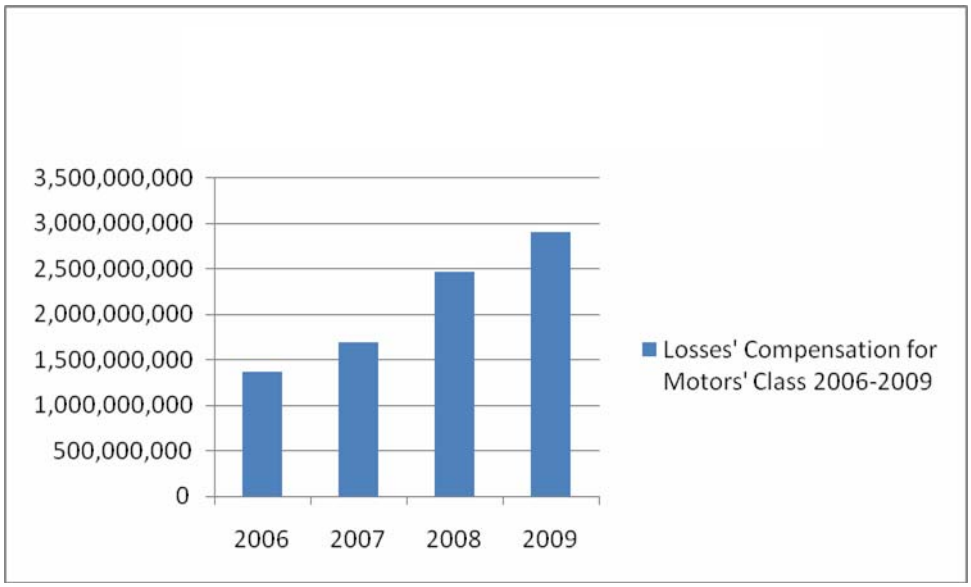


Figure 2. *Losses' compensation for motor' class 2006-2009*

As it can be observed from the graphic, the level of compensation increase every year, this fact is a negative one for insurance companies. The profit of the motors' class increased from 489 million Ron in 2006 to 1,101 million Ron in 2008, than recorded an important decrease in 2009 down to 437 million Ron (lower than in 2006). We must do the mention that there are only compensation taken into account. If we add other expenses and insurance commission for selling the policies (at a medium percentage of 15% from gross written premium) the profit of motors' own insurance class may be such in the next graphic – as difference between blue bars and the red ones:

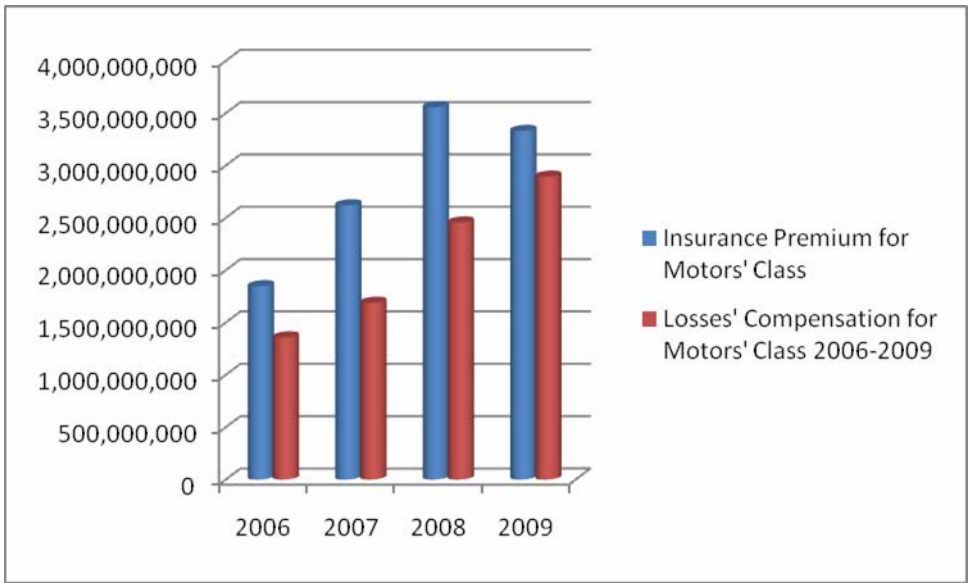


Figure 3. *Profit evolution on insurance motor' class 2006-2009*

Once with the modification in the Fiscal Code, VAT increases from19% to 24% - from 1st of July 2010. In that case all product seemed to record a 5% increasing. Insurance policies are not vat bearable, so they should not be affected by this modification. The situation is quite opposite, insurance companies fundaments the insurance quotations using the costs – the most important one is repairing costs for damages insures assets. In case of motors' own damages insurance the cost with motors' repairing increases with 5% – auto services using vat, transfer the tax to the next consumer – the insurance company in that case.

So, in order not to looses theirs' client – existed and potential ones, Romanian insurance companies try to use "special promotion" for motors' own damages insurance:

- A discount for not having damages in the previous year/years,
- A discount for buying other insurance policies,
- A discount for people that work in budgetary system (affected by a salary decrease of 25%),
- A discount for the people that have small children (these persons seems to be more responsible in traffic).

It is very difficult to choose the best insurance for a person, so we choose to analyze the actual offer of the most important insurance companies in Romania – judging after gross written premium and the belonging to an international insurance company (Astra rank 3 was not taken into account because they do not offered any price at our request, Asirom rank 4 was not taken into account because belong to Wiena Insurance as Omniasig, ING Insurance rank 7 activate only in life insurance):

Rank	Company	Gross Written Premium	Market Share
1	ALLIANZ	1,285,882,261	14.50
2	OMNIASIG	1,114,407,407	12.56
5	BCR ASIGURARI	576,058,371	6.49
6	GROUPAMA	536,983,257	6.05
8	GENERALI	506,946,316	5.72
	Total insurance market	8,869,746,957	100%

Source: www.csa-isc.ro

The best offer is not involving only the lower price, but also the best/the expected coverings. Insurance companies have an variation in the prices so the option is not an easy one. For an adequate analyze for August 2010, we use an individual of 35 years, domiciled in municipal city, with a driving license of 15 years old, the vehicle is a 2008 Volkswagen Golf model with the acquisition value of 14,850 euro.

In case of BCR Asigurari, the insured sum is 11,800 euro, the insurance premium is 484 euro/one year – payable in four quarterly installments, the insurance include a deductible of 100 euro for each loss.

In case of Omniasig, the insured sum is 12,540 euro, the insurance premium is 665 euro/one year – payable in four quarterly installments, the insurance include a deductible of 100 euro for each partial loss and 10% deductible from insured sum in case of a total loss. If the 100 euro deductible is eliminated, the insurance premium becomes 790 euro/one year.

In case of Generali the insured sum is 10,530 euro, the insurance premium is 471 euro/one year – payable in 4 quarterly installments, the insurance include a deductible of 100 euro for each loss.

In case of Groupama the insured sum is 14,850 euro (for vehicles up to three years old the insured sum is the new value of the vehicle), the insurance premium is 721 euro/one year – payable in four quarterly installments, the insurance include a deductible of 100 euro for each partial loss and 10% deductible from insured sum in case of a total loss. If the 100 euro deductible is eliminated, the insurance premium became 780 euro/one year.

In case of Allianz Tiriac the insured sum is 12,800 euro, the insurance premium is 646 euro/one year – payable in four quarterly installments, the insurance include a deductible of 100 euro for each loss. In case the partial loss exceeds the level of 1,200 euro in case of an event, the deductible is not applicable.

A potential client that analyzes summary this information must understand exactly what they means, because there are a lot of factors that must be taken into account:

- the insurance premium and the level of deductible,
- the insured sum,
- insurance contractual terms: the insured risks and the exclusions,
- individual needs confronted with available coverage,
- the recommendations of a company and the quality of relation between the insurance company and the authorized motors' garages.

If we analyze the best offer under insurance premium criteria and the level of 100 euro/deductible for each event, the best insurance price is provided by Generali Insurance – 471 euro. Some of the potential clients are not very confident with an insurance that include such a deductible. In that case if a client has:

- one event per year the total paid amount is 571 euro (471 euro insurance premium plus 100 euro the deductible)
- two events per year the total paid amount is 671 euro (471 euro insurance premium plus 200 euro the deductibles).

In that case the offer must be analyzed without deductibles for partial losses, the offers of Omniasig and Groupama are quite similar 780-790 euro/year. At the same level of the insurance premium the most important factor becomes the insured sum – 14,850 euro at Groupama. Allianz offer is a delicate one – the deductible of 100 euro/event is cancelled if the loss is over 1,200 euro. We assume that the level of 1,200 can be easily overlap because at least three factors:

- an important loss for a car easily overlap the level of 1,200 euro,
- in case of a minor loss the client may wait for another loss to occur, in that case just adding the value of both losses the level of 1,200 euro is reached,
- in case of a minor loss the client may be tempted to fraud, to make another damage to the car in order to exceed the level of 1,200 euro.

So, we conclude that the best insurance without deductible is offered by Allianz Insurance – 646 euro/year.

All the insurance companies offer different motors' own damages insurance, for different types of the risks. The above analysis refers to all risks coverage. There are lower insurance price if the clients choose a less covering insurance:

- the risks relating the theft of the vehicle or components of the vehicle is not insured,
- the risk related to vandalism (this aspect must be analyzed carefully because if the vehicle is found damaged in the parking and the guilty driver is not known the insurance will not cover the loss). This is not a very bad situation, because the client may declare to the insurance company that he hit something else, in that case insurance will pay the loss. This is possible once with the amiable notification, the police agents do not give official papers for such events,
- there is a special clause included in the insurance price both by Alllianz and Generali – roadside assistance. This clause is offered free of charge and is very important – in the moment the vehicle suffer an internal damage (caused by technical problem not covered by insurance) the vehicle is towed to the closest garage. Moreover if the solving of the technical problem takes more than one day, the insurance company covers the hosting expenses of the passengers from the vehicle. In case the problem is more complex the insurance will cover the expenses for getting the car and the passengers back to their domicile / or desired destination.

The last criteria – the recommendations of a company and the quality of relation between the insurance company and the authorized motors' garages – may not be applicable for these insurance companies, because as multinational corporation benefit of a good reputation and decent relationship with all business partners.

Conclusions

Insurance coverage is a necessity for the modern world life. One of the most important insurance policies in the market is motors' own damages insurance. Although the market fills the harsh economic developments for the last two years, insurance companies still find this kind of policies commercially attractive. A client who buys a motors' own damages insurance is more incline to buy other insurance products from the same insurer.

As a response to the present economic conditions, the insurers try to tailor their products to their client's specific needs. So, an insurance policy is not an easy product to buy. One has to take in account many factors such as: the risks covered, the insured sum, the premium, deductibles, extra services and the good reputation of the insurer.

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THE COMPETITIVITY OF THE LIFE INSURANCE MARKET IN ROMANIA

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Abstract. *This paper has the objective of investigating the competitivity status of the life insurance sector in Romania, which is based upon the insurers' financial stability. First, we shall analyse the competitive structure of the life insurance market, respectively the determinant factors of the competition which lead to the formation of a tight oligopoly. In the following chapter, we shall examine, using the mathematic regression method, the competitivity status on the life insurance market in Romania through the evolution of the market concentration index Herfindahl Hirschmann HHI between the years 2001-2009. We shall formulate conclusions and give a prognosis of this indicator's evolution.*

Keywords: insurance; life insurance market; competitivity; HHI index; regression.

JEL Code: G220.
REL Code: 11C.

1. Introduction

The life insurance market in Romania is still in an early stage of evolution. The values recorded by qualitative statistic indicators, the life insurance's degree of penetration in the GDP and the density of life insurance come to support the assertion above. According to the most recent existent data published by CEA (European Insurance and Re-Insurance Companies Federation), at an european level, in 2008, concerning the penetration degree of insurance in the GDP, Romania occupies the penultimate place in the EU, recording a value of 0.3%, exceeding Lithuania and, regarding insurance's density, the antepenultimate place, with a value of 21 Euro/inhabitant, surpassing only Lithuania and Bulgaria.

In Romania, the tendency of the insured is to protect their patrimony, contracting primarily general insurance, to the detriment of life insurance. In comparison to the mature insurance markets in the EU, where the weight of the life insurance premiums is bigger than that of the general insurance in total gross written premiums, the average in the EU being 60.81%, in our country, the total gross life written premiums represent 18.36% of the total gross written premiums(1).

In this context, the life insurance market is dominated by the big transnational financial groups, activating through the insurance companies founded in our country. The market share which the top five insurance companies hold is 71.52%, according to the data published by the CSA (the Insurance Supervision Commission) for the year 2009.

The Herfindahl – Hirschman Index, or simply the HHI index, assesses the competitivity status and the degree of concentration existing on the market and, on the basis of the results which it records, the competition supervising authority approves or rejects acquisition or merger projects (Gavrilă I., Gavrilă T., 2009, pp. 71-73). The market concentration index HHI had an oscilating evolution, with an overall descendent trend in the period 2001-2009. In 2009, the value which it recorded was 1.601. This increased value is characteristic for a tight oligopoly, which has a negative influence over the competition on the market and over the insurers' competitivity. The factors which increase the risk of creating a

tight oligopoly are part of the competitive structure in the insurance market and are threfore individually analysed in this project.

Due to the untransparent character of the life insurance market and the heterogeneous character of life insurance products, a first and most important criteria taken into account by people wishing to buy life insurance policies (inclusively on the more mature markets) is the insurer's notoriety, meaning it's good renown, financial stability and performance. The life insurance market in Romania has long been related to life insurance policies requested by banks as a warranty, which only covered death and disability. For these insurance policies, the decision was made, in most cases, based on the price of the insurance. In the past few years, the weight of bank-imposed life insurance as a warranty for loans has decreased, and we can observe an increase of capital accumulation insurance, especially of unit-linked insurance, which today have a weighting of 38.65% of the market(2).

Our research starts from the hypothesis that, in the future, the brand will matter more and more in choosing the insurance company, which will lead to an increase of the market's concentration degree ilustrated by the HHI index, to the decrease of the competition on the market and of the insurer's competitivity. The method used to determine the HHI index's evolution is the temporal mathematic regression.

2. The competitive structure of Romania's life insurance market

According to the values recorded by the HHI market's concentration index and the K5 concentration index, presented in the table bellow, the Romanian life insurance market is a tight oligopoly. This type of market allows for the accomplishment of supra-normal profits, with a high probability for these to be even greater than the supra-normal profits obtained on a market with high competitivity.

From the supply's point of view, we can see that the insurance companies have a considerable power in establishing insurance prices, because the number of insurance companies with relevant turnovers is still small and the insurance companies in the EU still don't significantly operate on our market in the virtue of the freedom to perform services and the free settlement right, which doesn't lead to high competitivity premises.

Romania's life insurance market is a place where the big international groups ING, ALICO, AVIVA, AIG, VIENNA INSURANCE GROUP, GENERALI, ALLIANZ operate. The market is undergoing a consolidation process following the past three years' acquisitions and mergers. According to the information published for the end of 2009, ING ASIGURĂRI DE VIAȚĂ maintains its position as undisputable leader, 32.37% market share, followed by BCR ASIGURĂRI DE VIAȚĂ VIENNA INSURANCE GROUP S.A., 15.67% and by ALICO ASIGURĂRI ROMÂNIA S.A., 11,76% (3).

In the past two years, new important competitors have entered the market, AXA INSURANCE, who purchased OMNIASIG ASIGURĂRI DE VIAȚĂ, and also AEGON, ERGO, UNIQA, SOGECAP.

From the demand's point of view, we see that the consumers' power of negotiation is limited, due to the untransparent nature of life insurance products and the few substituents existent for them.

In this context, we shall further analyse the competitive nature of the insurance market and the determinant factors of the competition.

The diagnosis table presented bellow contains a list of co-ordinated and unilateral factors which increase the probability of a tight oligopoly.

Co-ordinated factors reffer to tacit or explicit agreements of the insurers, while unilateral factors reffer to the insurers' individual actions.

Table 1

Determinant factors of the competition

	Co-ordinated factors	Unilateral factors
Supply factors		
Essential	Few companies	Few companies
	High entry barriers	High entry barriers
	Frequent interactions	Heerogeneous products
Important	Transparency	Structural links
Demand factors		
	Low firm-level elasticity of demand	
	Stable demand	Imperfections regarding financial consultancy

2.1. Supply factors

An indicator for the concentration of the life insurance market, which offers a suggestive image about the market's competitivity, is the Herfindahl-Hirschman Index (HHI), which is calculated as the sum of the squares of all life insurers' market share. Between the years 2001-2009, the HHI Index had an average value of 2.181, and, in the period following Romania's adhesion to the EU, 2007-2009, we calculated an average HHI index of 1.689 for the romanian life insurance industry. Although we can see a slight improvement of the competitivity on the life insurance market, it must be mentioned that these recorded values are bellow any acceptable critical value.

Table 2

Concentration indices, number of companies and number of entrants (%)

(primary source of data: CSA reports 2001-2009)

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
No. of life insurers	21	21	22	21	21	19	20	22	24
No. of new entries	-	0	2	1	0	3	2	2	3
No. of new entries %	-	0	9.09	4.76	0	15.79	10	9.09	12.50
HHI Life Insurance	3099	3375	2324	2045	1837	1884	1698	1767	1601
K5 Life Insurance %	87.33	82.56	80.13	74.77	71.75	71.50	70.55	71.20	71.52

The values obtained by calculating the HHI index are reconfirmed by those obtained by calculating the K5 market concentration index, which represents the sum between the biggest five market shares.

In Romania, in the year 2009, the top five companies controlled 71.52%, and, in the year 2008, the K5 indicator was at 71%. Romania finds itself at the same level as The Czech Republic-73%, Belgium-73% or Bulgaria-72%, and is surpassed by Slovakia-100%, Portugal-85%, Finland-88%. However, in comparison to the important insurance markets in the EU, the competition is low, Germany recording a value of 37%, Great Britain of 49%, Italy-33%, France-53%, Spain-41%(3).

A second factor which determines competition is the market entry barriers. In the above chart, we ilustrated the number of new insurance companies which entered the market as a percentage of the total number of insurers, percentage which varied from 0% in 2002 up to 12.5% in 2009. In comparison to countries like Germany, Great Britain or France, where these variations range between 1% and 4%, the values in our country are high, but this has to be analysed taking into account the small number of insurance companies activating on the romanian market, 24, unlike 99 in Germany, 72 in France and 141 in United Kingdom. The market entrance barriers remain at a high level due to the fact that Romania's life insurance

market is dominated by big transnational companies and the insured's tendency is to preffer brands, even in spite of higher insurance prices.

Regarding the market's transparency and the frequent interactions, it must be mentioned that insurers are excepted from the provisions of article 81 of the EU Treaty, which reffers to anti-competitive cooperation between companies, by Regulation 1534/91 CEE and the block exemption 358/2008. Life insurers in our country interact on an informational level, using common statistics in order to establish life insurance premiums and exchanging information regarding costs, mortality and the way to calculate premiums. These information aren't always used to improve the market's transparency and accessibility for new entry life insurers and can lead to agreements between insurance companies which can harm the competition. The heterogeneous products existing on the market make comparison between products being hard to carry out. This fact allows insurance companies to raise prices independently of competitors, as consumers are less likely to switch to another company in response to price differences, due to high switching costs and high searching costs.

Structural links, such as common shareholdership, or intra-group bonds, decrease the degree of competition. In Romania, structural links are not at an alarming level. BCR Asigurări de Viață SA, second place in the market with a market share of 15.67% in 2009 and Asirom S.A, fifth place with a market share of 5.46%, have the same main shareholder, Vienna Insurance Group. Astra SA, sixteenth place, with 0.63% market share, owns 16.02% of Generali Asigurări SA, seventh place, which has a market share of 5.18%(5).

2.2. Demand factors

Competition is equally influenced by factors related to the demand. Here, we can also distinguish between co-ordinated and unilateral factors.

The elasticity of residual demand determines how attractive it is for a company to unilaterally change its prices. High costs for switching the insurer and high searching costs to find other similar products determine a low elasticity at the company level. Cancellation costs for life insurance products are quite high, clients being reluctant to change their insurer.

The demand for life insurance products isn't high in Romania, but it is stable and foreseeable, which stimulate insurance companies to cooperate in maintaining a high level for prices, to the insured's disadvantage.

Also, the elasticity of residual demand for life insurance policies is limited, due to the abscence of substituents. Investment funds and bank economies can, in principle, be an alternative for money allocated for retirement, but they lack the risk coverage, the esential element of life insurance. More so, life insurance have a more advantageous tax regime than fund investments and bank economies.

High costs for changing the insurer are characteristic for life insurance policies, because contracts are being concluded for long periods of time and ending them implies costs for investment liquidation and refunding acquisition costs, which were not yet paid off since they have been distributed for a certain period of time.

Expences for searching life insurance products are relatively high, because these products are complicated and the market is opaque. These could be reduced if the search would be entrusted to insurance brokers, this leading to another important benefit for the insured, which is avoiding errors when choosing a product. The market would become much more competitive, since the demand's elasticity would increase, and a new market would be created, that of the financial advisors.

However, there are some reasons which prevent this financial advisors market from functioning, mainly due to the fact that the main stimulation for this market is represented by the level of commissions.

Also, for the insurance brokers, there is a temptation, when they are counseling less experienced clients, to recommend insurers which offer bigger commissions instead of the best insurance solutions for the client.

The less transparent the market is, the weaker is the consumer's negotiating power.

The powerful brands existent on the market, ING, ALLIANZ, ALICO, AVIVA, GENERALI and the high total market share which they hold are signs of the lack of transparency, because the consumer trust in a brand replaces price comparison and benefits which lie at the core of personal decisions.

Another indicator is the degree of consumers' organisation into associations, for instance, in order to be informed and to decrease the opaque nature of the market. An organized information source for the population regarding life insurance are websites, which offer product comparison and present insurance contracts in detail. A small number of clients use this information, while the majority insure themselves through the agents of the insurance company, which represent the interst of the insurer.

A good indicator is the percentage of which consumers purchase group life insurance policies in total. When the group contracts are being signed, the conditions and quotations are negociated by specialists from the employer and, in this particular case, the power of the consumers to negociate is larger. The employee benefits component is poorly evolved in our country, the percentage of group insurance in the insurer's portfolio being insignificant.

Finally, the number of bidders is also important. As seen above, their number is insufficient, 24 in total, out of which only 7 of them have market shares bigger than 5%.

3. The application of mathematical regression analysis in order to determine the evolution of the HHI index for life insurance market

3.1. The objective of the research

The main objective of the research is to configure and foresee the HHI's index evolution, calculated for Romania's life insurance market.

The HHI index measures the degree of competition existent on the life insurance market, which directly influences romanian insurers' competitivity. We observed, studying the behaviour of the insured, that their tendency is to be more and more cautious in choosing the insurer, brand and financial stability being the essential criteria in making the final decision. This behaviour will lead to an increase of the market's concentration degree, and, therefore, to a decrease of the competition on the market, which will have a negative influence on romanian life insurers' competitivity.

3.2. Data collection

The calculations have been made on the basis of the existing data in the CSA's reports in the period 2001-2009. These reports show the gross insurance premiums subscribed by every insurance company in total and also divided into general insurance and life insurance.

3.3. Data processing and research method

The insurers' market shares have been centralized into charts for every year and for each we calculated the HHI index.

$H = \sum_{i=1}^{n} S_i$ where S is the market share of the i company and H the HHI index

The method used is the regression analysis. The regression process implies two important steps. The first reffers to determining the regression ecuation, which represents the relationship between the dependent variable and time, and the second consists of using this ecuation for the prediction.

3.4. Grafical representation through the scattered plot graph method

The simple regression method implies explaining the resulted variable Y on the basis of the factorial variable time, using a regression function Y = F(X), where Y is the value of

the Herfindahl HHI index represented on the OY axis, and X is the time variable, represented on the OY axis.

We will get a first appreciation regarding the common distribution if we draw the diagram for the values' spread. The statistical data presented sustain the hypothesis of association between values if the shape of the dot cloud approaches a functional line. In our case, we consider that a curve concave line best represents the tendency for the evolution of the HHI Life index.

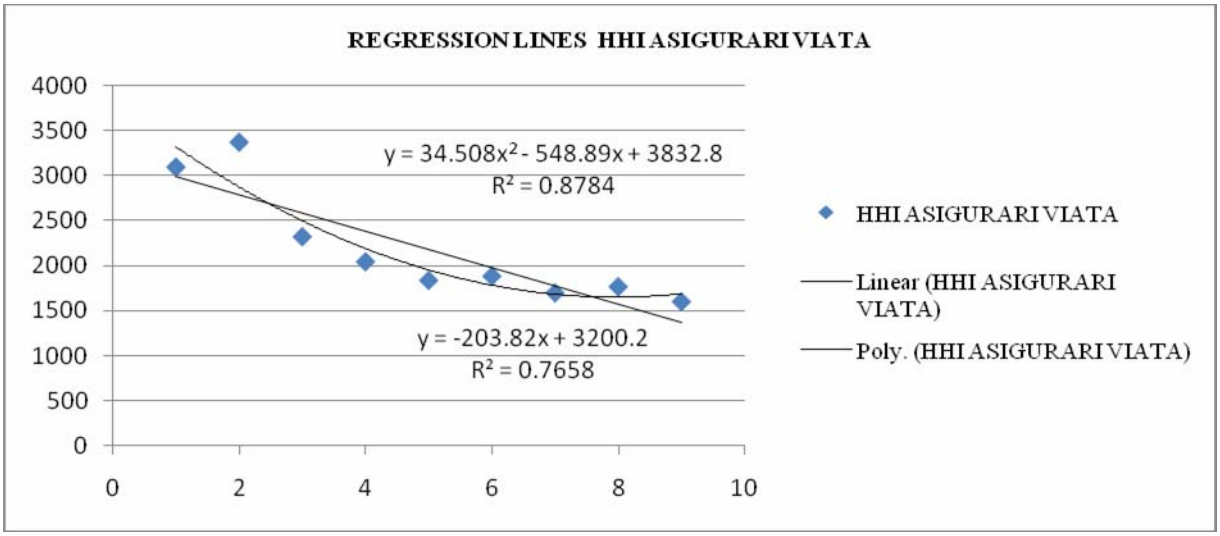

Figure 1. *Scattered plot and regression lines*

3.5. Applying the method of the smallest squares in order to estimate the regression parameters

Using the method of the smallest squares, we determined two models to best represent the tendency of the HHI index evolution in time: the liniar model with the predictable component $\hat{y} = \hat{a}x_i + \hat{b}$ + = -203.8x + 3200 and the polinomial model with the predictable component $\hat{y} = \hat{a}\,x_i^2 + \hat{b}x_i + \hat{c}$ = 34,50x^2 -548.8x+3832 .

3.6. Comparison between the two regression models

In order to determine which model is the best adjusted one, we used the F variance comparison test. After applying this test, what resulted was that both models are just as well adjusted, with a confidence probability of 95%.

We further compared the two models from a graphical point of view, from the determination coefficient point of view RSQUARED, and from that of the standard error SE and the F significance. The polinomial model recorded a stronger corelation between the dependent and the independent variable, RSQUARED was 0.88%, in comparison to 0.77%, a smaller standard error, 256 in comparison to 330 and a smaller error probability, 0.001 in comparison to 0.002.

Sequelly, we analysed the results obtained for the polinomial regression model in detail, using the programs Analyse-IT and the Data Analysis Add-in from Excel 2007.

3.7. Veryfying the substantiation hypothesis for the smallest squares method

In order to be sure that the estimations obtained using the smallest squares method are of maximum plausibility, we further analysed the following conditions which the errors have to meet:

-The homoscedasticity hypothesis: The aleatory (residual) variable is following a normal repartition – its average is zero $M(\varepsilon) = 0$, and its variance S_ε^2 is constant and not

dependent of *x*. This was confirmed by analysing residual's plot, where we observed that the deviation value (Residuals) = y-$\hat{y}$ is relatively small, the differences are aleatory regarding their succession in time and their average is 0. On the other hand, by analysing the residues' graphical representation depending on the independent variable's varriation, we saw that the values situate themselves within a horizontal strip, which reflects the residues' variance constancy and have an oscilating evolution, which shows the independence of the model's variables.

In order to verify the homoscedasticity hypothesis, we shall apply the White test. The White test allows us to establish whether the residual variables' variance is constant. The test mainly consists of explaining the series of the residues' squares $(e_i^2)\, i = \overline{1,n}$ in ratio to one or more exogenous variables (Andrei, Bourbonnais, 2008, pp. 245-246).

The White test implies, in our case, the regression model $u_i = a_0 + a_1 X + a_2 X^2 + v$, for which we obtain estimations and the determination coefficient R^2. The coefficient calculated by the White test is $LM = n \times R^2$. If LM sits itself bellow the charted level $\chi^2_{\alpha,K-1}$, then the residual values are homoscedastic, respectively heteroscedastic in the contrary case. The charted value of the chi squared distribution $\chi^2_{0.05,1}$ is 3.841, which is bigger than the calculated value of the White test, 3.0444. In conclusion, the homoscedasticity hypothesis is confirmed with 95% confidence probability.

- The residual variable's values ε_i are independent and not auto-correlated: Since the number of observation is smaller than 15, we can't apply the Durbin Watson test. However, this hypothesis can be verryfied by calculating the auto-correlation coefficient in order to determine whether the residues are auto-correlated or not (Pecican, 2006, p. 81).

$$r_{\varepsilon_i \varepsilon_{(i-1)}} = \frac{\sum_{i=1}^{n} \varepsilon_i \times \varepsilon_{i-1}}{\sum_{i=1}^{n} \varepsilon_i^2}$$

In our case, $r_{\varepsilon_i \varepsilon_{(i-1)}}$ has a value of -0.43878, smaller than -0.5, so we can't conclude that an auto-correlation exists between the residues.

To check this hypothesis, we shall apply the t test:

For $t_{calc} = \frac{r}{\sqrt{1-r^2}} \times \sqrt{n-2}$ the following value is obtained: 1.3307.

The charted level for α = 0.05 of the Student repartition's with 6 degrees of freedom is 2.447 and therefore we can interpret that, in our case, the auto-correlation coeficient doesn't significantly differ from 0.

- Veryfying the normality hypothesis: In order to verify the normality hypothesis, we shall use the Shapiro-Wilk test.

The test's formula is:

$$W = \frac{(\sum_{i=1}^{n} a_i \times x_{(i)})^2}{\sum_{i=1}^{n} (x_i - \overline{x})^2}$$

$x_{(i)}$ are x_i's ordered values; $\overline{x}$ is the sample's arithmetical mean

The a_i constants are actually a liniar vector obtained through the following formula:

$$(a_1 \dots a_n) = \frac{m^T \times V^{-1}}{(m^T \times V^{-1} \times V^{-1} \times m)^{1/2}} \quad where\ m = (m_1 \dots m_n)^T$$

$m_1 \dots m_n$ represent a liniar vector formed by the independent and identically distributed alleatory variables' ordered statistics average resulted from the standard normal distribution and V is the covariance matrix for these ordered statistics.

With a 10% probability of rejecting the H_0hypothesis: the residues' series follows a normal repartition, the Shapiro-Wilk test is giving us the following results: W = 0.85 and p value = 0.0739. Considering that p value < 0.10, we can conclude that the H_0 hypothesis of the test: „the residues' series follows a normal repartition" is confirmed with 90% confidence.

3.8. Analysis of the statistical indicators' tables obtained by processing the empirical data through the regression analysis method using the program Analyse-It and the Data Analysis module from Excel 2007

The correlation coeficient R, which measures the power and the direction of the correlation between the two variables, has a high value of 0.93, indicating a very strong and directly proportional correlation between the dependent variable time and the independent variable HHI I Life Index.

The determination coeficient R^2 has a high value of 0.87, which means that 87.84% of the dependent variable variation can be explained by the relation described in the regression ecuation.

The standard error SE calculated through the applied program is an average measurement of the dependent estimated values' distance (standard deviation) from the empirical ones. The standard error recorded by the polinomial model is 256.80, which represents a small value in comparison to the values recorded by $\hat{y}$.

3.9. Testing the statistical significance of the model and establishing the confidence intervals

After the ANOVA variance's analysis, what resulted was that the polinomial model which we calculated in order to represent the HHI Life index's evolution is statistically significant.

The global statistical significance of the model is determined by applying the Fisher Snedecor -F test. The calculated value of F = 21.67711454 is bigger than the carted one, 5.14, disproving the a=b=c hypothesis, thus the model's statistical significance is very good. The model's error probability is very reduced, 0.001796721, well bellow the significance barrier of 0.05 which we took into account.

The statistical significance of the model's parameters is determined by applying the t test for each parameter. After calculating, what resulted was that t stat's value for b and c well exceeds the value 2.447 coresponding to $t_{0,05;6}$ from the Student repartition table, disproving the void hypothesis. The value for a is 0.09, smaller than the charted value, but passes the Student test for an acceptable risk of 0.10 (t_{Stat} =2.35 > $t_{charted}$ = 1.943).

P-value is the critical bilateral probability for the t test with the hypothesis specified at t_{stat}. For the significance barrier α = 0.05 which we have chosen, we can reject the null hypothesis for all parameters: c (0.00 < 0.05 very strong statistical significance), b (0.01 < 0.05 strong statistical significance) and a (0.05=0.05, barely statisticaly significant).

Two types of confidence intervals appear to be of interest: for the model's parameters, α_i and for the prognosis values with the help of the estimated model $\hat{y}_i$.

For the 95% confidence level, α = 0.05% for the case in which the a parameter of our ecuation we have:

$$(\hat{a} - t_{(0,05;n-2)}\sigma_{\hat{a}}) \leq a \leq (\hat{a} + t_{(0,05;n-2)}\sigma_{\hat{a}})$$

lower confidence limit upper confidence limit

By calculating the same thing for the b and c parameters we can then interpret that, in the statistical population, the model's parameters are included withing the following intervals:

-1.298104713 < a < 70.31325623

-916.024347 < b < -181.7605015

3033.26221 < c < 4632.404457

Using the same reasoning for $\hat{y}_i$.

$$(\hat{y}_i - t_{(0,05;n-2)}\sigma_{\hat{y}_i}) \leq y_i \leq (\hat{y}_i + t_{(0,05;n-2)}\sigma_{\hat{y}_i})$$

$$(\hat{y}_i - 1161.58) \leq y_i \leq (\hat{y}_i + 1161.58)$$

3.10. Predicted HHI life insurance index and conclusions

The main utility of the liniar model is the prognosis of the dependent variable's values. The prognosis value is obviously a statistical one, since it's obtained through the estimated model (from the exerimental data). We can therefore speak of the boring repartition of the predicted values, repartition which sits at the core of determining confidence intervals for predicted values.

The values forecasted by our model are the following:

For the year 2010: HHI Life Insurance = 1.794

For the year 2011: HHI Life Insurance = 1.970.

The prognosis values show a growing evolution of the HHI index for life insurance, also confirmed by the financial un-audited results from 30.06.2010. According to the financial results published by Insurance Profile, the market share for the top eight life insurers has grown from 86.63% in 31.12.2009 to 90.16% in 30.06.2010 and for the first ten insurance companies (practically the ones with a market share of above 1.8%), from 91.85% to 95.64%. What had an important influence regarding this increase was BCR Asigurări de viață's market share growth from 15.67% to 19.01%, company which took some of Aviva's and Grawe's market shares, and also the takeover of Asiban by Groupama. Slight growths were also recorded by first place Ing Asigurări de Viață, 1.55%, third place Alico, 0.39% and fourth place Asirom VIG, 0.31%(6).

The HHI Life index had, in 30.06.2010, a value of 1808, being very near to the value forecasted by the model for the end of the year 2010, which is 1,794.

The chosen regression model confirmes, for the next two years, the economical theory from which our study originated. The HHI index for life insurance market concentration will continue to grow due to Romanian consumers' tendency of choosing wellknown strong companies, which made history in the insurance domain worldwide and, as a consequence, the competition on the market will decrease and, implicitly, so will romanian life insurers' competitivity.

According to the data which we have, on the 30.06.2010, unlike the general insurance sector, which regressed by 5.6%, the total gross written life insurance premiums grew by 4.3% in comparison to the level recorded in 30.06.2009, in a context where, in this period of financial crisis, unit linked insurance also recorded a growth of 28.41%(7). In the past years, the life insurance market's center of gravity shifted from the clasic insurance imposed by banks when signing loan deals (where the main criteria for the choice made was generally the price) towards products with capital accumulation and a small degree of risk, on one hand, and towards products related to fund investments, on the other hand. People signing for life insurance have matured, choosing primarily insurance companies which proved financial stability and performance along the years, which will lead to an increase of the life insurance market concentration.

Notes

(1)The data is provided by CSA 2009 report upon the insurance market and the activity.

(2) The data is provided by Primm Insurance and Pensions 12/2010.

(3) Idem (1).

(3) The data is provided by European Insurance and Re-Insurance Companies Federation - CEA, latest statistic 2008.

(5) Idem (1).

(6) The data is provided by Primm Insurance and Pensions 12/2010. The nominal evolution is calculated in EURO.

(7) Idem (6).

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THE PROFIT PERCENTAGE OF THE PERSONAL ACCIDENT INSURANCES. COMPARED CASE STUDY

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Abstract. *The article proposes to present a comparative analyze of two life insurance products of the most important insurance company from the Romanian market. The comparison focuses on a life insurance with capitalization and an investment plan. The two products analyzed includes the presentation of the financial aspects, especially, and the estimated profit of the products.*

Keywords: insurance products; profit percentage of the investment; insured sums; guaranteed sums; ransom value.

JEL Codes: G22, G32.
REL Code: 11C.

1. Introduction

The present case study presents one of the most important components of a life insurance product, the insurance application form. This application contains the estimations of the insurer, personalized for each client. The client analyzes the estimations and the insurance conditions and if he agrees with them the policy is issued. The case study presents an estimation of two types of life insurance: a traditional insurance and a unit-linked product (investment plan) for a female of 32 years old.

2. The presentation of the specific elements of insurance types

The case study compares two life insurance products: a traditional product and a unit linked product.

The person analyzes has 32 years old and the period of the contracts is 28 years, therefore at the end of the contract the person will have 60 years old (the retirement age).

The traditional product is called by the company REGAL and it's a mixed life insurance product which covers both the death risk and the survival risk.

The unit linked product is called GenT and it's an investment plan which covers the death risk.

To both contracts there were attached the same additional clauses, such as:

- The additional clause for permanent infirmity caused by accident;
- The additional clause for exoneration from the insurance premium payments;
- The additional clause for chirurgical interventions in case of an accident;
- The additional clause for hospitalization in case of an accident.

The insurance premium for the two types of products is the same.

The analyzed data are based on the estimations of ING Life Insurance from 25 October 2010.

Each product has two components:

1. The basic product,
2. The additional clauses attached to the basic product.

➢ **The traditional insurance REGAL**

„*Regal*" is a mixed life insurance product with capitalization component (it covers the death risk and also permits the payment of the insured sum in case of survival) and the

invested money can be received at the end of the contract. The insured person benefits of a capitalization fund, in heritage, educational fund for children or additional retirement fund. It is important to know that if the insured person wants to withdraw the money he will cancel the policy and the cover but he received the ransom value.

The risks covered by this insurance during the contract are the following:

- Survival at the end of the contract;
- Death by any cause;

In the following tables there are presented the insured sums and the risks covered by this type of insurance.

Table 1

Technical elements of REGAL contract

Technical details	u.m.
Age of insured person	32 years
Sex	Feminine
Frequency of premium payment	Monthly
Insured sum in case of survival	50,607 lei
Insured sum in case of death	50,607 lei
Period of premium payment	28 years
Contract period	28 years
Premium for survival component	126.52 lei
Premium for death component	4.98
Total premiums for the basic insurance	131.50 lei

As we can observe, the first component of death represents only 3.78% from the insurance premium, the rest being distributed for the survival insurance, meaning the capitalization plan. Although there is a major difference of allocated premium, the insured sums are the same 50,607 lei.

Each insurance can include additional clauses in case of optimal health of the insured person. The period in which the person benefits of the chirurgical interventions and hospitalization clauses caused by accident is only of 15 years because after 48 years the risk increases considerably and the insurer will not assume it anymore. We can remark the major difference between the insurance premium and the insured sum: the premium is only 0,38% from the insured sum for the Additional clause of chirurgical interventions in case of an accident and 0.03% from the insured sum for the Additional clause of permanent infirmity caused by an accident.

Table 2

Technical details concerning the additional clauses to the basic product

Additional clause type	Insured sum (lei)	Period	Monthly premium
Additional clause for permanent infirmity caused by an accident	50,000	28	12.50
Additional clause for exoneration from the premium payment	-	28	7.20
Additional clause for chirurgical intervention in case of an accident	1,700	15	6.6
Additional clause for hospitalization in case of an accident	110	15	7.73
Total premiums for additional clauses	-	-	34.03 lei

Source: Estimations of SC ING Life Insurance SA.

Cumulating the two components of the product we obtain a total premium per month of 165.25 lei and an annual premium of 1,983 lei. To this product we apply a discount of 5% per year from the insurance premium because the annual premium cashed by the company is more than 1,500 lei. Therefore, the annual premiums paid by the client remains 1,887 lei.

- **The unit linked insurance Gen T**

The insurance Gen T is an investment plan created as a unit linked product which includes in the same contract the protection offered by a life insurance. This type of insurance offers:

- Benefit in case of death of the insured person during the contract, the sum representing maximum the difference between the insured sum and value of the account at that time;
- Benefit in case of death of the insured person after the finalization of the contract but before reaching the age of 91 years, representing the value of the account;
- Access of the accumulated sums into account during the entire period of the contract;
- The possibility of increasing the invested sum by paying additional premiums.

The investment programs where the money is invested represent portfolios of financial actives in lei administrated exclusive for insurance purposes. Using these programs they offer access to the most efficient placements from the internal and international financial market.
In the following tables there are presented the insured sums and the risks covered by this type of insurance.

Table 3

Technical elements of the contract Gen T

Technical details	u.m.
Age of the insured person	32 years old
Sex	Female
Frequency of premium payments	Monthly
Insured sum in case of death	13,000 lei
Period of premium payment	28 years
Period of the insurance contract	63 years
Premium for the death component	6.50 lei
Premium for the investment component	125.00 lei
Total premiums for the basic product	131.50 lei

Source: Estimations of SC ING Life Insurance SA.

As we can observe, for the death component the allocated premium is very low, representing 4.94% from the insurance premium. The major part of the premium is allocated to buy investment links.

To a unit linked insurance we can also add additional clauses, in the conditions of an optimal health of the insured person. The period during which we have the benefit of the additional clause of permanent infirmity caused by an accident is of 28 years because the risk caused by an accident is constant during the period of the contract. We can remark the major difference between the insurance premium and the insured sum: the premium is only 4.35% from the insured sum at the additional clause of exoneration from the premium payment and 0.02% from the insured for the additional clause of permanent infirmity caused by an accident.

Table 4

Technical data concerning the additional clauses attached to the basic product

Type of additional clauses	Insured sum (lei)	Period	Monthly premium
Additional clause for permanent infirmity caused by an accident	50,000	28	12.50
Additional clause for exoneration from the premium payments	-	28	7.20
Additional clause for chirurgical interventions in case of an accident	1,700	15	5.71
Additional clause for hospitalization in case of an accident	110	15	7.73
Total premiums for additional clauses	-	-	34.03 lei

Source: Estimations of SC ING Life Insurance SA.

Cumulating the two components of the product we obtain a total monthly payment of 163.53 lei and an annual sum of 1,986.36 lei. There are no discounts applied to this product.

The type of investment program where the money will be invested is MIXT 25, meaning that 25% from the sum is invested in shares and 75% thesaurus bonds, banking deposits and fin bonds. The profits of the chosen investment programs take into consideration an inflation percentage of 5% annually (during the entire period of the contract) and an average interest of the program MIXT of 6% per year.

The comparison of the two products presented is based on the allocated premiums and the obtained results. The obtained results are evaluated according to the value of the account and the ransom value. The company takes into consideration an optimistic scenario and a guaranteed scenario. The optimistic scenario represents an estimation made basing on a set of standard conditions: the interest rate of 5% and the inflation rate of 5% per year. The ransom value represents the received sum of the client in case the contract is finalized. The value of the account, for the traditional product is represented by the insured sum in case of survival.

The optimistic scenario (in lei) of the two products presented is the following:

Table 5

Estimated projections of the evolution of the contracts during the period 2010-2038

Traditional insurance				Unit linked insurance		
Year of the policy	Sum of paid premiums	Value of the account	Ransom value	Sum of paid premiums	Value of the account	Ransom value
1	1,578	50,607	0	1,578	1,530	0
2	3,238	54,083	0	3,235	3,019	0
3	4,989	57,525	0	4,975	4,820	3,608
7	13,013	70,856	9,088	12,848	14,403	12,599
11	23,038	83,206	20,594	22,418	28,133	25,674
15	35,660	94,162	38,521	34,051	45,372	42,320
19	51,647	103,233	60,185	48,191	66,357	62,828
23	72,033	109,825	85,249	65,378	91,417	87,549
26	91,124	112,725	109,135	80,657	113,191	109,193
27	98,403	113,238	118,128	86,268	121,068	117,056
28	106,208	113,501	127,730	92,159	129,278	129,278

Source: Estimations of SC ING Life Insurance SA.

The ransom value is 0 in the first three years because the initial costs (commissions, administration cost, costs of issuing the policy) are very high.

It can be observed that the sum of the premiums is updated every year with the inflation rate and at the end of the contract, at the traditional insurance, the insured person will receive 113,501 lei, to which it's added a participation to profit of 19,980 lei, with 25% more than he paid. *Therefore, it has been obtained a capitalization, an interest of 25% and the respective person was insured also for the death risk.* If during this interval (28 years) the insured person would die, the family receives a sum of 50,607 lei.

At the unit-linked product, the insured paid a total of 92,159 lei, from which 87,604 lei for the investment component and will receive 129,278 lei at the end of the contract, with 40% more than he paid. *Therefore, it has been obtained a capitalization with 40% and the respective person was insured also for the death risk.*

Next to the optimistic scenario, the insurance company presents a scenario with guaranteed sums in case the client chooses a traditional product. In case of a unit linked product the company makes estimation for the evolution of the contract at a constant value of the units. The constant value of the units represents the value of the units at an interest equal with zero.

Table 6

The guaranteed projections of the evolutions of the contracts (lei) during the period 2010-2038

Traditional insurance				Unit linked insurance		
Year of the policy	Sum of paid premiums	Reduced insured sum guaranteed	Guaranteed ransom value	Sum of paid premiums	Value of the account	Ransom value
1	1,578	0	0	1,578	1,429	0
2	3,238	0	0	3,235	2,711	0
3	4,989	0	0	4,975	4,173	3,169
7	13,013	17,217	8,023	12,848	10,814	9,583
11	23,038	31,034	16,486	22,418	18,932	17,447
15	35,660	47,351	28,834	34,051	28,849	27,103
19	51,647	64,671	46,437	48,191	40,959	38,970
23	72,033	83,476	68,181	65,378	55,743	53,563
26	91,124	98,433	90,568	80,657	68,929	66,671
27	98,403	103,560	99,294	86,268	73,779	71,512
28	106,208	108,749	108,749	92,159	78,875	78,875

Source: Estimations of SC ING Life Insurance SA.

At the traditional insurance, the reduced insured sum guaranteed and the guaranteed ransom value represents the guaranteed values of the insurer. These are calculated basing on a rate of interest of 3,5% per year. This interest represents the guaranteed interest of increasing the mathematic reserve. The reduced insured sum guaranteed represents the sum received by the client at the end of the contract if, at some point, he stops paying the premiums (the contract transforms into a free contract of paying the premiums).

It can be observed that at the end of the contract period, at the traditional insurance, the insured person will receive guaranteed 108,749 lei, with 2.4% more than the client paid. *Therefore, it has been obtained a capitalization; an interest rate of 2.4% and the respective person was also insured for the risk of death.* If during this interval (28 years) the insured person would die, the family receives a sum of 50.604 lei.

At the unit-linked product, the insured person paid 92,159 lei for the investment component and will receive 78,875 lei at the end of the contract, with 14% less than he paid. *The difference of 13,284 lei lost represents the administration cost of the product and the allocated premium for the death risk. Therefore, it was obtained a capitalization without an interest but the respective person was insured against the death risk.*

The costs of a unit-linked product are:

a. Taxes deductible from the value of the accumulated units: Transfer tax between funds.

b. Taxes deductible from the value of the initial units: recuperation tax of the initial expenses.

c. Administration taxes: administration tax of the policy, the difference between the selling price and the buying price of the units, the tax of partial ransom.

Some taxes are paid in percentages and some of them are fixed.

Although the taxes are pretty high, there is the advantage of choosing the wanted investment fund. The money can be allocated to many types of investment funds according the risk resistance.

According the calculations, ING has a good investment strategy.

3. Conclusions

The advantages of the traditional product are:

✓ It has a guaranteed sum at the end of the contract, indifferent the evolution of the capital market. The money is invested into: thesaurus bonds, fin bonds issued by the state, bank deposits at ING bank.

✓ The money is invested by the insurance company and the company assumes in totally the placement risk. Therefore it will choose the placements with low risks, investing in bank deposits or state bonds. The placements made will not produce consistent profit but they will also not produce loses.

✓ The upgrade of the insurance premium to the inflation

✓ The low risk of the investment concerning the capitalization component

✓ The possibility of attaching and canceling the additional clauses at the anniversary of the policy (every year)

The advantages of the unit linked product are:

➢ The money is invested by the client and he assumes the risk of the investment. He chooses the wanted investment fund according to the risk resistance.

➢ Receiving a good profit for the invested money.

➢ During the insurance contract the investment fund can be changes for free and /or the number of the units bought to each of them.

➢ Annually the units can be transferred from different funds where the money has been invested

➢ The insured sum (and guaranteed by the insurer) can be chosen between certain limits which depend on the age.

➢ The insurance premium can be changed anytime, with an automatic modification of the value of the account (if the premium increases, so is the value of the account; if the premium decreases, so is the value of the account).

➢ The possibility of making some additional payments on the contract. The minimum sums requested differ from a company to another but the average is placed around the sum of 1000 lei.

➢ The possibility of withdrawing some sums of money from the ones invested anytime during the period of the contract.

➢ The possibility of attaching and canceling the additional clauses at the anniversary of the policy (every year)), of changing the payment interval of the premiums after each new year of the contract. Usually, the premium payment is made annually, bi-annually, quarterly or monthly or anytime you want to increase the investment.

The unit linked products are flexible but more risky than the traditional insurances and present also some disadvantages:

❖ The package of services is expensive. You are forced to invest high amounts of money if you want to benefit of a better profit, because the cost is the same for each contract, indifferent the premium paid. There is also the risk of not paying the premium in the difficult periods and losing the insurance.

❖ The cancelation of the contract before the ending period will have as a result losing the premiums paid the lack of the interest and it will register loses.

❖ A simple life insurance, for the same sum, costs even with 5-10 times less than the insurance with an investment component.

❖ An investment next to insurance generates a higher premium and a small profit, even if the investments funds are chosen by the client. It’s better to invest the money separately.

According to the Fiscal Code, the paid premiums for the life insurances are not deductible from the incomes but also the sums received from insurances are not imposable.

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*** Proiecţii SC ING Asigurări de Viaţă SA

THE IMPORTANCE OF THE INDICATORS IN MEASURING THE ECONOMIC AND SOCIAL EFICIENCY OF THE INSURANCES

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Abstract. *Writing this article, the author proposes to make a brief presentation of the categories of indicators which determine the economic efficiency of the activity developed by the insurance companies from Romania and European Union. In the analyze of the activity efficiency of an insurance company it is followed the application of the same evaluation principles of the performance of each company. The application of the indicators is used to establish the most profitable report between the cashed premiums and the paid claims.*

Keywords: insurances efficiency; insurances profit; solvability percentage; evaluation of insurances; indicators

JEL Codes: G22, G21.
REL Code: 11C.

1. Introduction

Any activity developed (from the commerce, tourism and service field) must obtain results. Their examination is made basing on efficiency and on the economic and financial results obtained.

The economic efficiency of the insurances expresses the report between the optimal results obtained from the insurance premiums and the expenses determined by rebuilding the destroyed goods or the insured sums. The efficiency concept in the insurance activity is based on the report between the effect obtained and the effort deposited in the insurance activity. The efficiency of an insurer will be determined by the financial results obtained. The economic and social efficiency of the insurances must be examined both by the interests of the national economy, the insurer who develops its activity based on the economic and financial administration and also the interests of the insured persons. This concept can be observed from two points of view: the insurers and the insured.

*From the insured point of view (*individual or legal person) the effect of the insurance activity consists of receiving/cashing some claims or indemnities (Văcărel, 2007, p. 623) from the insurance companies. All these paid claims and indemnities create conditions of continuity of the economic activity, of maintaining the property integrity and capitalization. The effort of the insurance activity consists of the payment of the insurance premiums and assuming some contractual obligations.

The efficiency of the insurances for the insured person can be registered when the value of the paid claims or the insurance indemnities is close to the value of the claim registered and the period from the insured event till the cash of the claims or indemnities is more reduced.

From the insurer's point of view, the effect of the insurance activity consists in cashing some amounts of money called insurance premiums which contribute to the profit of the company.

The effort of the insurance activity consists of paying amounts of money called paid claims or indemnities and also the organization, administration and implication in the activities related to insurance.

The efficiency for the insurer can be registered when the value of the claims paid or insurance indemnities is smaller than the premiums cashed from the clients.

Another way of approaching the concept of efficiency report is the result (the incomes) obtained from the insurance and the expenses determined by the insurance. However, this approach must take into consideration few specific aspects of the insurance activity. Most companies can estimate their costs before establishing the prices for their products and services. The insurance companies cannot do that as the production product develops in a different way. The insurer „sells" before „producing" and „the cost of the sold product" is not known. (Bistriceanu, 2002, p. 146). The insurer must establish first the prices of the services provided and then the afferent costs. In this situation the current prices are determined based on estimated costs, expected costs which will appear during the period when they cashed the premiums. We remark that the insurance company will use in their cost calculations the statistic data, mathematic calculations and estimated calculations based on actuary methods. This unique method of establishing the price influences the financial situation by constituting the claim reserve (the total sum registered in the accounting of the insurer for afferent obligations for the claims unsolved by the respective date). The knowledge of the precision which are constituted and maintained the reserves is fundamental for the evaluation of any insurer (Constantinescu, 2000, p. 404).

The analyze of the efficiency of insurance activity is also established by the expenses made by the company with the paid claims and insured sum, taking into consideration the aleatory character of the claims. The analyze of the efficiency needs to be made on a longer period of time but not less than 5-10 years (compared to the other economic activities whose efficiency can be determined annually). In this way the conclusions can be fundamental.

2. The economic and financial indicators used in the evaluation of the insurance companies

The economic and social efficiency of the insurances is analyzed and expressed by using several indicators, some of them specific to the insurance types.

The evaluation indicators of the efficiency of insurance companies' activity are established by taking into consideration several elements:

- Certain aimed objectives,
- The appreciation level of the efficiency (micro or macro),
- The present legal settlements,
- The insurance category and the class of insurance analyzed.

The liquidity in debt level and profit concepts is used here also. The specific characteristics of insurance operations determine, however, certain modifications of these concepts. The accounting documents based on which the analyze of the efficiency is made represent the financial data published by the company. In the following pages we will concentrate on the performance indicators associated to the three parts of a financial situation of an insurance company and on some strategic implications of these indicators. The three parts of the dynamical analyze of the company are:

– *Investments:* These are represented by the insurer placements on the capital market, in different investment funds. The analyze of their efficiency will focus on the profit made by these placements and the market value of the company's shares.

– *Performances:* Through this component the performances of the company will be analyzed from a commercial point of view, the method of using the funds in order to generate turnover and profit.

– *Financial balance:* By analyzing it we will determine if the company is solvable or liquid.

The indicators calculated for each of these components represent a different importance for different stakeholders (a person or a group of persons who has/have a personal implication in a certain company and its performances). The shareholders and the potential investors are interested to know the value of the investment indicators. The performance indicators revealed to managers and the strategists which is the economic situation of the company. The banks and other creditors want to know if, besides the performances of the company, it's solvable of liquid. The financial indicators are calculated basing on the data published by the company. For a correct study the values obtained must be analyzed on longer periods of time and correlated to the external values registered in economy and industry. The results of the company must be compared with the economy indicators and with the performances of other competitive companies.

2.1. Investments indicators

In order to reflect the efficiency of the company's investments from the perspective of the company's shareholders, we presented several indicators which determine how optimal the capital of the company invested is.

1. **The profit of the personal capital** is calculated by reporting the available profit of the shareholders (after deducting all the fiscal obligations) to the total funds invested by the shareholders (personal or social capital). If the value of the indicator is over 100, the company has a bigger profit than the personal capital.

2. The indicator of the share income surprises the report between the profit obtained by the company and the number of shares issued. In order to compare two companies we need to calculate the report price-incomes (indicator 3).

3. The value of the indicator **price-incomes** indicates the multiple incomes per share for which a potential investor accepts to buy a share. The value of this indicator is influenced by the profit or the anterior success of the company but, in reality, it represents an indicator of the expectations of the investors. Also, the indicator shows how expensive is the funds attraction. For example, if the company chooses to attract funds from the existing shareholders by offering them new shares (in the percentage of the participation to the capital), higher is the value of the indicator, lower will be the capital. The indicators *price-incomes per share and incomes per share* are indicators which can be applied especially to companies rated to stock-exchange.

4. The profit of the share can be equal with the interest received by the shareholder, calculated in report with the market price of the share. This indicator must be used with prudence because it doesn't take into consideration the price paid by the buyer (the nominal value at which the share was issued) for its shares but the price and the market value of the share at some point. The calculation is representative if the financial year approaches as usually then is the time when the dividends are calculated.

These indicators were analyzed in the following table:

Table 1

Investment indicators	Calculation method	Explanations
The profit of the personal capital	(Net profit / Personal capital)*100 or (Net profit / Social capital)*100	*They measure the profit of the investment made by the shareholders.* *The value of the indicator is good when it registers values more than 100.*
The incomes per share	Net profit / Number of ordinary shares issued	*The net profit represents the income of the shareholders. The net profit can be given to the shareholders as dividends or it can be reinvested as social capital.*
The report price-incomes	Market price of an ordinary share/Incomes per share	*The report indicates the multiple incomes per share which the investors accept to buy. The bigger the value of the report the better image will have the company.*

Investment indicators	Calculation method	Explanations
The profit of the share (%)	Dividends per share/ Market price of the share	*The share profit is equal with the rate of the interest in an investment. Although it implies the reduction of the dividends, reinvesting the profits can increase on long term the price of the share.*

2.2. Indicators of the company's performances

The measure of the company's profit shows how capable is the company to survive and develop its activity. More often it is calculated by using the combined rate(1).

1. The combined rate includes two more rates: loss rate and expenses rate.

a) The loss rate is one of the most important indicators used in the appreciation of the activity of an insurance company. It is expressed as a report between the paid claims or the insured sums paid by the insurer and the premiums cashed. The loss rate is in percentage and it can be lower, equal or higher than 100%. In case the indicator is less than 100% the financial situation of the company is favorable for the insurer. We need to specify that the loss rate doesn't include all the expenses made by the insurer and it's negatively influenced by the inflation rate.

b) The expenses rate or the insurance cost is obtained from the report of the insurances expenses (paid claims or insurance indemnities, acquisition costs, collection of premiums, general costs, taxes and expenses concerning the constitution and the administration of the insurance fund) and the premium obtained from insurances, financial placements and other sources. The relative cost shows, in percentages, how many the expenses of insurances represent in comparison with the incomes made from the insurance activity. In general, it's less than 100% but in some cases it's more. In this situation the insurer didn't cover the total expenses from the incomes made.

The combined rate is determined by the sum of the loss rate and the expenses rate. The loss rate and also the expenses rate is calculated for each year of insurance and for the entire period studied. Also, the indicators are calculated either per company or per branches, obtaining both a general and a detailed analyze. The analyze of the loss rate and the expenses rate operates separately, on categories of goods and insured persons, insisting on the goods as the expenses for creating the insurance fund are higher than in other cases.

2. The rate of the net income is another indicator which is often used in calculating the final financial results of an insurance company. This indicator represents the report between the total incomes and the total expenses registered in a certain period (usually one year) reported at the total incomes. The rate of the net income shows in percentages how much remains to the insurer from the 100 units of cashed premiums after he pays all the other expenses.

3. The profit of the actives expresses the size of the company's active in the total profit. The profit of the actives is calculated by reporting the net profit per year to the value of the used actives by the company in order to produce profit in the same period. It is appreciated that the value of the actives is good when the report is more than 1.

4. Another indicator used to appreciate the financial results is expenses to 1 unit net income. This is calculated as a report between the difference of total expenses and the total claims paid by the insurer during one year and the difference between the total incomes and total expenses. The less the indicator is the more favorable is for the insurer.

5. The insurance level is an indicator which offers an image on the insurance level of facultative policies. This is a report between the total goods (persons) insured and goods (persons) insurable. The insurance level is an indicator expressed in percentages and which shows how much from the goods (houses, persons) is insured. The more the indicator registers values close to 100 the more the respective facultative insurance is developed. If we talk about the goods insurance, a value close to 100 is good because it indicates the knowledge and the

usage of this insurance from the market. In case it's about a persons' insurance, then a value close to 100 will indicate a full market on the respective segment. The insurance level influences directly the results obtained from facultative insurances. Usually, the higher level of insurance the more favorable will be the report between the paid claims and the premium cashed, the dispersion of the risk being optimized as the number of facultative insurances is increasing (the law of large numbers).

6. The average number of insurance contracts sold by an insurance agent is an indicator which reflects the efficiency of the personnel who takes care of the issuing process of facultative contracts (goods, persons or civil liability); there is a set of indicators which can offer a qualitative and quantitative image provided by the agents of an insurer.

7. The average insured sum from an insurance contract is a specific indicator which can be determined on the total insurances or the new insurances issued in a certain period. It is calculated as a report between the total insured sums of the company and the total contracts issued. It can indicate the financial risks assumed by the respective company. This sum determines also the level of the insurance premium. In case of life insurances, the higher the insured sum is the bigger is the paid premium, therefore the company's incomes increase. The value of the indicator is good when they obtained result is higher.

8. In order to analyze the efficiency of an insurance company it is used another indicator: the average premium paid per contract. By using this indicator we can determine the average premium of an insurance contract. It represents the report between the total premiums cashed and the number of insurance contracts made. It can be used also in case of goods, persons and civil liability contracts to indicate the level of the funds which are or can be attracted from the population (insured persons).

9. The productivity of an insurance agent is an indicator which can be calculated in two methods. The first method indicates the premium level per employee. It is calculated as a report between the brut premiums and the number of the employees. The second method indicates the average profit brought by an insurance agent in a certain period of time. It can be obtained by reporting the net profit to the number of employees. The indicator can be calculated both in life insurances or the goods insurances.

10. The profit percentage is an indicator which presents the brut profit in the total turnover. The analyze of the profit percentage is significant when it's made to groups of products because it permits a better appreciation of the products' performances. Therefore, the company can elaborate a selective commercial policy on type of products.

Concerning the persons insurances the efficiency can be appreciated by using some indicators such as: the insurance level, the number of policies for 1000 insured persons, the average insured sum per contract, the average premium per contract, the number of insured contracts, the work productivity, the loss rate (of the insured sum), the relative cost of the insurance activity, the net income rate and the expenses of a leu net income.

Concerning the life insurances the insurance level can be calculated in different ways. A first method is reporting the number of active insurances at the end of the year to the number of insurable population; another method is reporting the number of active insurances at the end of the year to the total number of employees or reporting the total life portfolio to the total number of employees (or persons who produce incomes). Concerning the life insurances, there will be taken into consideration the economic, financial and exchange conditions. Some insurance companies assume obligations in other currencies. Also, the reinsurance contracts lead to currency cash-flow. The appreciation of the results of the insurance companies is made by using some indicators such as the loss rate, the relative cost of the insurance, the net income, exchange course, taking into consideration that for some insurances the premium is cashed in other currencies and the dispersion in time and space of the currency risk. For the insurances made in other currencies there will be made an analyze both a general one, for the incomes and expenses but also detailed one for types of incomes and expenses.

2.3. Indicators of the financial balance

The indicators of the financial balance can be divided in two categories: solvability and liquidity indicators.

1. Liquidity indicators refer to the capacity of the company to honor its obligations when the due date comes. The liquidity of the society depends on the cash-flow (The cash-flow is an analyze of all the changes which affect the cash account during a financial exercise. It is an indicator of the difference between the cashed money and the one paid by a company during the financial exercise), the relation between the actives and expenses, the available actives for the claims payment (Constantinescu, 2001, p. 36). The actives of an insurance company usually have an increased liquidity; they can be easily transformed into cash in order to honor the obligations for clients. More often it's calculated the rate of immediate liquidities as a report between the treasury actives and the short term obligations such as: premium reserves, reserves for expenses with the claims. A sub-unitary value of the report indicates an unfavorable situation for the company. In case of a supra-unitary report the insurer can honor its obligations by transforming the invested actives in cash at the market price.

The liquidity of an insurer can be determined by the report of the availabilities plus the current value of the invested actives to the company's obligations for its insured persons. A sub-unitary value of the report indicates a situation unfavorable to the company from the liquidity point of view. In case of supra-unitary report the insurer can cover its obligations by transforming the actives invested into cash at the market price.

The liquidity from the subscription operations can be determined by comparing the attracted funds with the ones consumed in this activity. In case an insurance company in course of development, the subscription activity must bring a contribution net substantial. A company can confront with liquidity problems when it invests very much in fixed actives or it can control the creditors. A successful company can also have problems of liquidities. The territorial expansion, for example, imposes investments in buildings, informatics systems and work force which many times it has to be paid before the policies are sold and issued to the clients. This fact can cause a temporary liquidity crisis.

2.4. Indicators of solvability

The solvability rates express the capacity of *insurance companies to issue new policies.* Same as the banks, which maintain a balance between the credits given and the deposits attracted, *the insurance companies must maintain a balance between the subscribed premiums and the social capital plus the reserves.* In the USA the solvability percentage is expressed as the report between the subscribed premiums and the surplus of the insured persons. The surplus of the insured persons represent from an accounting point of view the difference between the volume of the cashed premiums and the sum of the expenses registered, the claim and premium reserves and the paid claims. In case of companies on shares, the net value of the social capital is given by the social capital plus the surplus of the insured persons; however, in case of a mutual company it is represented by the surplus of the insured persons.

The variable character of the insurance activity and investments produces fluctuations of the insured surplus. These fluctuations can lead to the company's insolvability, especially in the conditions when a minimum surplus must be maintained. The company's management must determine the level of the employees' surplus which corresponds to the wanted rate of increasing the volume of the premiums.

The knowledge of the effective value of the profit is important to establish the available funds to pay dividends and for the investments in the company. However, it is very important to know which is the efficiency of the invested money inside the company – respective their profitability. This indicator ignores the providing source of the funds, making a general evaluation of the company's activity.

In order to prevent a lack of liquidity or an insolvability state it is necessary that the actives include a certain surplus over the level which balances the actives and passives, being called as solvability percentage. The difference between the actives and the obligations which need to be taken into consideration according to The Insurance Supervisory Commission represents the solvability percentage of the insurer.

3. Conclusions

The insurance activity supposes a specific dynamic, even unique, concerning the indicators used to determine its efficiency and profit. Therefore, we tried to describe a larger part of the indicators analyzed in the special literature and make a clear structure of them. Every insurance company is forced to follow an increased liquidity which permits an optimal solution for the clients' claims.

Note

(1) The combined rate presents the obtained results from the subscription activity in a financial exercise.

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THE IMPACT OF SOLVENCY II ON RISK CALIBRATION

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Abstract. *Many companies have invested in building internal models to cover their balance sheet risks over the past few years, sometimes driven by regulatory requirements, and sometimes driven by management or rating. The Solvency II framework introduces the one-year risk framework which might affect the model architecture or the calibration process on these existing models.*

Keywords: solvency; SCR; one-year risk; calibration; modeling.

JEL Code: G22.
REL Codes: 8C,11C.

Actuaries are puzzled by the one-year risk concept, and existing internal models need to be adjusted to bring them in line with the Solvency II Directive. Meanwhile, managers fear that the theoretical framework will not be in line with the way they have been running their businesses long before Solvency II was spotted on Google.

1. A hot spot - Article 101

The Fair Value balance sheet is one of the cornerstones of Solvency II, and its impact is not restricted only to the calculation of Fair Value assets and liabilities. The concept of market value margin (MVM), and the related one-year risk approach in the calculation of the Solvency Capital Requirement (SCR), find their origin in this Fair Value-driven approach: re/insurance companies should have enough capital on their balance sheets to cover the risks that can emerge over a 12-month timeframe and allow for a transfer of all (contractual) liabilities at the end of this balance-sheet period. This means that companies have to be able to calculate the impact of such shocks on their end-of-year balance sheets.

Article 101 of the Solvency II Directive defines the calculation of the SCR and is written in a very concise way, but when one begins to distil the various concepts introduced, it appears to be far more challenging than at first glance. Certainly, for those companies interested in developing a partial or full internal model, a proper understanding of Article 101 and its consequences on model architecture and calibration-related issues is crucial. If one reads carefully, one can separate:

- The ”shock“ period – this is the period over which a shock is applied to a risk. In Article 101 this is defined as one year. Therefore, only shocks or risks that can occur over the preceding 12 months need to be considered, whether these are shocks that affect the investments (e.g. a change in credit defaults) or shocks that affect the liabilities (e.g. a windstorm).

- The ”effect horizon“ – the period over which the shock that is applied to a risk will impact the company’s balance sheet. For instance, should a change in legislation become effective during the shock period, this will have a consequence on future claim payments and will impact the valuation of the liabilities. In this case, the effect horizon is the ultimate time horizon of the policy obligations.
- The ”exposure basis“ – this is the exposure that one needs to take into account when applying the shock. In Article 101, this is defined as the existing in-force liabilities at the opening balance sheet, plus the expected exposure from new business written over the subsequent 12 months.
- A ”risk profile“ – this is the distribution function from which the required capital will be derived. In Article 101, this is defined as the basic own funds. In an internal model it will therefore be crucial to calculate the movement of the basic own funds over a period of 12 months, allowing for a proper valuation at the end of this 12-month period, in line with the exposure the company is expecting to write.
- A ”risk measure“ – this is the statistical risk measurement applied on the risk profile. This has been set to the value-at-risk approach (VaR).
- The ”risk tolerance level“ – 99.5%.

2. Impact on internal model kernel

When reading the Directive, it would seem that generating an internal model that models excess of assets over liabilities is straightforward, but as soon as one gets into the details, one realises that, among the 80 consultants published so far by the Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS), there is very little guidance on how the requirements can actually be achieved.

A proper understanding of all these elements can make a major difference in the resulting SCR and the way the internal model can be used within the company to define a risk-limit structure and to assist in capital-related issues that management is facing.

The whole idea to focus on a balance-sheet perspective was probably welcomed by those with an accounting background, and it will also facilitate discussions between valuation-related aspects of Solvency II and future International Financial Reporting Standards (IFRS). For most actuaries, however, this approach, and the consequences it brings in terms of calibration of risks, has come as a surprise and is still creating confusion.

Historically, actuaries have calculated premium and reserve-related risks from an ultimate perspective, considering all the shocks that might occur over the lifetime of the liabilities. Now that the regulatory regime becomes truly risk sensitive, does this approach suddenly become less appropriate?

Risk-takers tend to calculate risks not only up to the end of the first year, but until the full development of risks. This is normal since the price should cover the full risk period, not only the first 12 months. The MVM is the glue that combines both visions, but this tends to be so technical that many people lose themselves in over-complicated calculation processes.

Is there actually so much difference between this one-year and ultimate approach? This really depends from which angle you look at the problem. Capital requirements calculated from a one-year risk approach will, in most cases, be lower than when calculated on an ultimate perspective. However, when one looks at the problem from a calculation point of view, the approach taken between a one-year or ultimate basis does not necessarily need to be that different.

The AISAM-ACME[(1)] study on Non-Life long-tail liabilities in October 2007 raised the alarm that only a few members were aware of the inconsistency that existed between their assessment on an ultimate basis and the Solvency II one-year approach. Since then a number

of algorithms have been described in actuarial literature to calculate risks from a one-year perspective. This seems to give the impression that ultimate and one-year are two different approaches. A much more logical approach is to calculate the risks to ultimate and then introduce a second process: How much of the risk (=deviation from the expected value) can be realistically measured over the first 12 months, over the first 24 months, etc., until, at ultimate, all the risk can be measured.

This second process is called the emergence of risk process. Take for example a reinsurer writing long-tail business.

The change in the view of the expected ultimate cost of claims over one year could be negligible, but the actual ultimate cost of claims after all liabilities have been extinguished could be very different from the opening view. In this case, the SCR covers the risks emerging during the first 12 months and the implications these might have on the end-of-year valuation, but the MVM covers the risks associated with the settling of liabilities beyond this 12-month period. Or, to be even more precise, the SCR covers the capital required to cushion the risk for the first 12 months, whereas the MVM covers the cost to attract capital to cushion the risk beyond the 12-month period.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1993	107.5%	107.5%	115.0%	115.0%	102.6%	95.3%	78.7%	74.4%	78.4%	70.8%	70.4%	66.6%	64.1%
1994		107.5%	100.0%	112.5%	112.5%	93.9%	81.6%	80.7%	79.3%	68.3%	63.4%	61.2%	59.6%
1995			107.5%	105.0%	120.0%	110.0%	88.0%	84.5%	82.7%	80.7%	80.1%	76.3%	73.6%
1996				107.5%	112.6%	112.5%	105.0%	103.5%	101.9%	93.3%	97.9%	96.8%	92.8%
1997					112.5%	115.0%	115.0%	115.0%	115.0%	106.7%	110.3%	112.9%	109.9%
1998						115.0%	105.0%	110.0%	122.5%	127.5%	142.5%	150.0%	162.5%
1999							110.0%	107.0%	105.0%	105.0%	110.0%	140.0%	145.0%
2000								105.0%	100.0%	100.0%	107.5%	115.0%	142.5%
2001									107.5%	97.5%	97.5%	92.5%	95.0%
2002										75.0%	75.0%	70.0%	67.5%
2003											70.0%	70.0%	67.5%
2004												72.5%	67.5%
2005													80.0%

σ (U,prem,lob) = 13,97%

σ (U,prem,lob) = 19,51%

Example of development table of best estimate 'ultimate loss ratios'

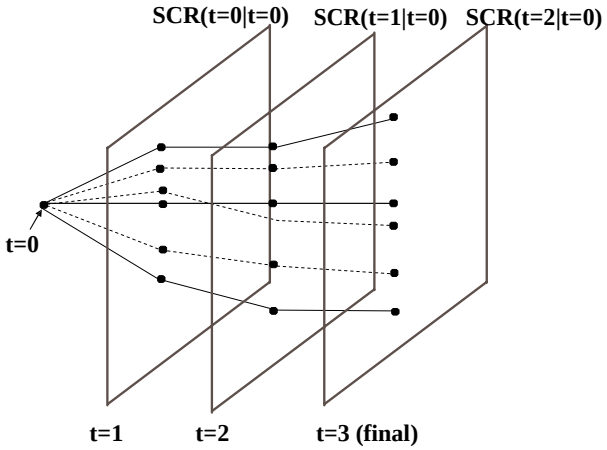
The above table shows the various ultimate loss ratio calculations (measured at different positions in time) per development period for a reinsurer who writes non-proportional business. When considering only the risk that emerges over the first 12 months, the loss-ratio seems to be quite stable across the various accounting years. This probably finds its reason in the fact that not much information is available, and most is based on estimates. Only through the development, information becomes available and the true ultimate loss-ratio (and its movement over time) becomes visible.

As an example the (premium risk) standard deviation suggested in Consultation Paper75 (method 1) was calculated based on the observed ultimate loss-ratio in its first year of development (13.97%) and based on the last known ultimate loss-ratio (19.51%). Clearly, the risk that emerges over the first 12 months is much lower than when considered from an ultimate perspective. The example clearly demonstrates the importance of the various definitions introduced by the Fair Value concept, not only on the calculation of the SCR but also on the MVM. Needless to say, a proper MVM calculation will be important for those companies writing long-tail re/insurance.

3. Risk emergence patterns

Using risk emergence patterns to bridge the link between one-year and ultimate is probably welcomed not only by actuaries but also by management. Actuaries do not have to change their traditional way of working. In order to come up with one-year risk parameters for reserve or premium calculation they can remain working on an ultimate basis, but an additional process will need to be added to derive appropriate parameter inputs for a Solvency II-type calculation. In their expression of the risk appetite, management might not only be

interested in covering the capital for the one-year period, but might also be interested in the level of capital required to cover the full run-off.



Emergence of risk through the development period

The above example shows the emergence of risk at the end of various 12-month periods, each showing the position of the ultimate view of loss given a certain ”state of the world“.

4. Impact on calibration

The Solvency II framework has been established to protect policyholders, and the one-year SCR + MVM approach is an appropriate way of doing so. Companies should be aware, however, that calculating SCR based on an ultimate perspective will lead to a much higher than required capital requirement that provides greater policyholder protection than the regulator is aiming for. Calibration of insurance risk on a total balance sheet approach itself is a quite challenging exercise – certainly in the case where one tries to cover all aspects of the technical insurance both on a gross and net level:

- Premium modeling: large loss, attritional loss, natural catastrophe loss, man-made catastrophe.
- Reserve modeling: large loss, attritional.
- Counterparty default modeling.

The one-year approach and the implications it has on the calibration process creates an additional requirement. But certainly from a use-test perspective, it is much better to re-use existing processes (which mostly deal with ultimate calculations) and append these to introduce the one-year risk approach. The aspects of risk emergence are not restricted to reserve risk only (as is currently discussed in most actuarial literature) but also have important implications on attritional and large loss premium risk modelling, certainly because the emergence of reserving risk between these different capabilities needs to be undertaken on a consistent basis. The icing on the cake is deriving a proper net-of-reinsurance position of the SCR where a clear link with all ultimate calculations is still auditable.

5. Conclusion

The impact of reinsurance on the risk profile of a company will therefore need to be reconsidered since it will have an effect on multiple levels:

- SCR – this will be the effect that will be most visible in future Solvency II related capital calculations.

- MVM – reinsurance can protect the business for the full run-off of the claim, and hence will also have an impact on the MVM calculation.
- ORSA (Own Risk and Solvency Assessment) – management should not only look at the capital required to cover the first 12 months but assume a going-concern point of view. In the end, besides some small examples, the insurer tends to take the risk on its balance sheet until it is settled.

Note

(1) International Association of Mutual Insurance Companies (AISAM) and Association of European Cooperative and Mutual Insurers (ACME) is about 80% of the mutual insurance market in Europe and over 6% of global insurance premiums.

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REFLECTIONS ON THE ROMANIAN INSURANCE BROKERAGE IN THE FINANCIAL CRISIS

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Abstract. *This paper presents the evolution of the insurance brokerage business through the insurance brokerage companies in our country over the past five years. The difficult economic situation in the economy in recent years has also influenced the insurance brokerage market in Romania in two distinct directions. First, brokers have incurred losses due to lower lease and loan activity; then their role increased due to the interests of customers and policyholders to obtain efficient, economical and cost-effective insurance offers from insurance brokers.*

Keywords: insurance broker; gross written premiums; brokerage commissions; brokerage office; adjustments of claims.

JEL Code: G22.
REL Code: 11C.

1. Introduction

On the insurance market in Romania in the underwriting business there are risk insurance and reinsurance companies and insurance brokers operating. Insurance products reach the consumer of insurances by way of insurance company employees and/or agents, or the insurance brokerage representatives. Analyzing the information provided by the regulatory institution which supervises the insurance market in our country, namely the Insurance Supervisory Commission (CSA), we found that in the last five years, an increasing volume of gross premiums written by large insurers were intermediated by commercial insurance brokerage companies, companies collectively known as “insurance brokers”.

2. Research status

Analyzing the achievements of the insurance market in the first half of 2010 we found that gross written premiums are decreasing as compared to the same period of 2009. In the first half of 2009 the 45 insurance companies had a gross written premium volume of 4,590.31 million RON respectively 1,085.36 million EURO, and in the first half of 2010 gross premiums written by insurers represented 4,327.51 million RON, respectively 1,043.23 million EURO. Of the total insurance premiums written by insurers, 36.19% were done by insurance brokers in the first semester of 2009, and 35.95% in first semester of 2010. These data show that during the economic crisis, whose presence is felt increasingly acute in all sectors of the national economy, the insurance brokerage market has decreased, and so has the business of insurers underwriting.

As defined in Law no. 32/2000[(1)] insurance intermediaries are individuals or legal persons as appropriate, referred to as insurance broker, brokerage assistant, insurance agent, subordinated insurance agent or subagent performing intermediation insurance activities in exchange for a fee or remuneration, licensed or registered under the conditions set by law, and rules issued pursuant to it, and intermediaries in the Member States which carry out insurance mediation activities in Romania, under the right of establishment and freedom to provide services.

The insurance broker is an entity that acts as an intermediary to obtain an insurance or reinsurance contract representing the client, i.e. the insured if we refer to insurances, the reinsured if we refer to reinsurances or the reinsurer if we refer to reinsurance for restitution. The insurance activity is conducted under a mandate that is granted by the brokerage client (insured individual) to represent their interests. Insurance brokers are involved in conducting risk inspections, the damage of adjustments and emergency commissariat.

3. Insurance market evolution in Romania during 2005-2009

During the period suggested for analysis one can notice a strengthening of the Romanian insurance market and of the existing insurance potential. Since 1 January 2007, when Romania became an EU member state, the insurance market also started to apply the single market principles on the free movement of services. Insurance business specific indicators show that the influence of economic and financial crisis on the Romanian insurance market, especially the premium subscription, was reduced in 2009. As seen from Table 1 gross premiums underwritten by insurance companies in 2009 were at levels close to those of 2008.

Table 1

Insurance market evolution in Romania during 2005-2009

Year	2005	2006	2007	2008	2009
Gross premiums written (RON thousand)	4,417,165	5,729,284	7,175,789	8,936,286	8,869,746

Source: Annual Reports of CSA in the period 2005-2009.

According to reports submitted by brokers to the Insurance Supervisory Commission in 2009, value of insurance premiums following negotiations brokered insurance contracts amounted to 3,211,369,388 RON, 13.20% real growth over the previous year. Comparing this value to the total gross premiums underwritten by insurers in 2009, one can notice that insurance brokers have brokered 36.19% of gross premiums written by the Romanian insurance market.

Table 2

Insurance brokerage market evolution in Romania during 2005-2009

Year	2005	2006	2007	2008	2009
Intermediated premiums (RON thousands)	855,389	1,165,077	1,568,530	2,704,593	3,211,369

Source: Annual Reports of CSA in the period 2005-2009.

In recent years, the insurance market in Romania has made a quantum leap in terms of both quantity and especially quality. The number of insurance brokers licensed by the Insurance Supervisory Commission has been on the increase each year. It has also extended the scope of their services. In addition to its brokerage business, the instrumentation and settlement of claims also developed. Currently there are insurance companies that have outsourced their damage services either partially or entirely. This aspect is common to both insurance companies as part of the Top 10 (eg. Asirom, Omniasig) and other insurance companies (eg. Certasig, Garanta). And there are also insurance brokers who engage only in regularization activities and crash damage claims (eg. Avus, eClaims).

The insurance brokerage market has maintained an upward trend since 2005 until 2009 fro almost all the indicators summarized in the table below.

Table 3

Dynamics of main indicators of the insurance brokerage market in Romania during 2005-2009

Indicator / Year		2005	2006	2007	2008	2009
No. of business brokers		281	313	348	403	437
Total assets - RON thousand		155,720	235,522	358,566	473,146	552,516
Capital subscribed - RON thousands		12,374	14,985	16,512	28,525	24,487
Paid-up share capital - RON thousands		12,284	14,884	16,366	28,379	24,377
No. brokers with profit		206	220	255	273	266
Value Profit - RON thousands		48,574	67,882	118,254	169,597	172,612
No. brokers with losses		75	93	93	130	171
Value of losses - RON thousands		2,862	3,779	12,707	20,690	27,308
Volume activity of brokers – RON thousands	Premiums mediated	855,389	1,165,077	1,568,530	2,704,593	3,211,370
	Income from brokerage of which:	165,726	239,769	350,785	488,530	504,692
	1. Fee premium	153,131	221,355	338,196	472,353	479,531
	2. Income from risk inspections	588	391	564	166	1,740
	3. Income from adjustment of claims	5,404	5,014	5,271	7,138	11,534
	4. Income from damage commissariat	201	208	389	427	2,615
	5. Other income	6,402	12,801	6,365	8,446	9,272

Source: Annual Reports of CSA in the period 2005-2009.

Since the establishment of the Insurance Supervisory Commission to 31.12.2009, 606 corporate insurance brokers were approved. Of these, at the end of 2009, 482 work on the insurance market and 124 suspended their activity on demand or as a result of the application of sanctions by the Insurance Supervisory Commission. Reports on accounting for the financial year 2009 were submitted within the time stipulated by the legislation in force by 437 insurance brokers whose results are contained in the Insurance Supervisory Commission report on the insurance carried in 2009. The 482 insurance brokers mediate the insurance offers of the 45 insurance companies authorized by the Insurance Supervisory Commission. Of these, 21 specialize in general insurances, 13 in life insurances, and 11 have composite activity. Insurance Brokers operate in the legal form of joint stock companies and limited liability companies. Of the total insurance brokers, the top 10 insurance brokers in 2009 generated over 47% of the total insurance premiums brokered on the brokering market.

4. Analysis of the insurance brokerage market in 2008 – 2010

Based on the preliminary results of the insurance market in Romania, for the first nine months of 2010, released * (Insurance Profile, No. 3 (28) / 2010), we chose to compare the period of activity for the first nine months of 2008, 2009 and 2010.

The most favorable year of the Romanian insurance market in the analyzed period (2005-2009) was 2008, when the crisis effects on the international financial markets did not visibly influence the Romanian economy. These effects were felt more in the years 2009 and 2010, as shown in Table 4.

Table 4

The value of insurance premiums/mediated in nine months in 2008-2010

Indicator / Period	3Q-2008	3Q-2009	3Q-2010
Total written premiums (RON mil.)	6,683	6,641	6,303
Brokers intermediated premiums (RON mil.)	1,820	2,008	1,945
Percentage	27.23	30.23	30.85

Source: author's processing based on information published in the journals *Insurance profile* during 2008-2010.

Of the total insurance premiums mediated by brokers the highest rate is held by car insurances such as MTPL, and Motor Hull. Their values are listed in Table 5.

Table 5

Weight of motor insurance premiums of the total broker intermediations in the first nine months of 2008-2010

Indicator / Period	3Q-2008	3Q-2009	3Q-2010
Total premiums mediated by brokers (RON mil.) of which:	1,820	2,008	1,945
Car insurance (RON mil.)	1,463	1,602	1,534
Percentage	80.38	79.78	78.86

Source: author's processing based on information published in the journals *Insurance profile* during 2008-2010.

In 2008, bank lending and financing through leasing was prosperous. From the total insurance premiums mediated in the car insurance class 78.12% represented Motor Hull and 21.88% Liability.

With the decrease in leasing and lending, the Motor Hull type insurance weight began to decline reaching 75.09% in 2009 and 60% in 2010. For the MTPL type premiums had an upward trend, increasing from 21.88% in 2008 to 24.91% in 2009, and reached 40% in 2010. In Table 6 we comparatively present the evolution of intermediation of the two main car insurance categories such as Motor Hull and Auto Liability.

Table 6

The dynamics of broker subscriptions in the first nine months of 2008-2010

Indicator / Period	3Q-2008	3Q-2009	3Q-2010
mediated motor insurance premiums (RON mil.) of which:	1,463	1,602	1,534
Motor Hull (RON mil.)	1,143	1,203	922
MTPL(RON mil.)	320	399	612

Source: author processing based on information published in journals *Insurance profile* during 2008-2010.

Insurance brokers have countered the decrease of Motor hull insurance premium subscriptions which is an Optional insurance by increasing intermediation of the MTPL insurance. The weight oh Motor Hull insurance was provided by the corporate sector lending and leasing. MTPL insurance was an important source of auto insurance subscription. By analyzing the structure of portfolio insurance brokers, we find insurance brokerage companies whose raw mediated MTPL held significant percentages of up to 90% in the first nine months of 2010.

We appreciate that the insurance brokerage business has maintained his market share in the total insurance market in our country. Insurance brokerage market has managed to adapt to new economic conditions resulting from entering the second year of economic crisis.

5. Conclusions

Companies whose business is insurance brokerage, like other industries, conduct a great deal of their work through electronic commerce. Mandatory electronic issuance by insurers and insurance intermediaries policy type MTPL [(2)], resulted in streamlining the information flow of underwriting these insurance policies. The brokers' need to offer premium insurance quotes has led them to develop software for the electronic issuance and other types of insurance. The concept of e-security "makes its presence felt in the online sale of insurance by brokers, leading to an increase in the efficiency of tendering and issuing insurance policies.

Developing these solutions enables brokers to issue insurance policies covering type PAD as well [(3)].

The application of the provisions of the Law no. 260/2008 [(4)] on compulsory insurance of housing since 15 July 2010 requires all house owners to sign this type of insurance policy. An opportunity for insurance brokers is to direct attention to the rural market that can provide an unexpected potential for growth during the crisis. This will result in informing and educating people to protect assets through insurances, by stimulating the voluntary insurance market.

Insights include the insurance activity in various areas: financial services, banking, industry, construction, transport, communications, health, education and research, tourism, associations and foundations, publishing, commerce, agriculture and others. The companies have been the first to know about insurance brokerage. There are few companies that work directly with insurance companies. An ever more significant percentage of corporations use the services of broker in order to sign insurance policies.

The macroeconomic context will lead to the development of insurance intermediation in Romania. The average growth in recent years in the insurance industry was about 20% and the decrease in times of crisis will also slow down based on both the "healthy" evolution in the past years and the fact that the current economic situation raises the policyholders' awareness as to the need of protection through insurances.

Notes

(1) Law No. 32/2000 on insurance companies and insurance supervision, published in the Official Gazette, Part I no.148 of 10.04.2000, as amended and supplemented.

(2) Insurance profile, No.4 (29), November, 2010 .

(3) According to CSA Order no. 21/2009 for implementing the Rules on compulsory insurance against civil liability for damages caused by car accidents (Published in the Official Gazette, Part I no. 812 of 27/11/2009).

(4) Policy of PAD is compulsory house insurance policy against catastrophic risk.

(5) The law No.260/2008 on compulsory insurance homes against earthquakes, landslides or floods (Published in Official Gazette no. 757 from 11.10.2008).

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LEGISLATIVE IMPACT ON PRIVATE FUNDS MARKET

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Abstract. *More and more countries in the region face serious problems in the public budget, so that emergency solutions are needed in order to deal with the persistency of the financial crisis. One of them was identified as it follows: private administrated funds assets should be taken over by the public budget. This situation requires the impact study of these decisions on participants, because this could endanger the entire system nationalization multi pension.*

Keywords: pillar private pension system; public pensions; social security; efficiency; nationalizing pensions.

JEL Codes: F22, G18, G23.
REL Codes: 11C, 12E, 13K.

1. Introduction

Given that in more and more states there are discussions about nationalizing the private pension system, it is clear that for those tempted by such investments, the legitimate question is whether these will not reach the famous cases such as CARITAS, or FNI. You can mention this because in these situations even if it is not a private manager to defraud the system, there is an abusive takeover, related to which those private fund managers seem to have no power, whether they are private or voluntary run.

As has been noted in other papers (Şerbănescu, 2000a, p. 55), preceding several draft laws difficult to label, the legislative factor is important for the pensions market, discussing whether at national or international apportioned.

Currently, the most difficult hurdle to pass is the idea of nationalization of private pension fund assets (Pillar II), the main countries that has been raised this issue being Hungary and Bulgaria. It is obvious that in such a situation, any discussion related to the scientific orientation of participants to a particular fund or the choosing of an alternative investment cannot be treated in a neutral way.

It raises the question especially for those who have joined the second pillar voluntary, and now, after they actually had chosen the change, which is just the same as in the past, meaning public management for their individual funds. The more difficult question is what will happen in this situation, if the state does not obtain the expected results so that the amounts which had been placed in the privately managed pillar according to certain criteria will be wasted on the basis of less efficient investments.

In the two states mentioned above, things are bad enough, even if there is a high probability not to promulgate such a legislative nonsense, especially under pressure from international organizations. Already in the case of Bulgaria, these possible classification procedures as unconstitutional decisions are almost completed.

2. The impact of hasty action on the participants' decisions

Signs of these changes to a totally unexpected effect occurred since 2008 when the reduction of the rate deducted from social security contribution (SSC) rate was considered a method of combating the crisis(1). This comes somewhat at odds, if we analyze purely based on this criterion, due to the fact that contribution rate increased.

On the other hand, increasing the SSC base can cause distortions in the individual's decision, because overtime is not obvious benefit of tax advantages, on which to opt for other forms of savings and protection. In these circumstances we face a threefold challenge to the entity:

• The increased contribution rate, that directly affects the employee's propensity to work legally. This reality is compounded by the fact that no service is palpable at the European level, in exchange for these contributions;

• It broadens the tax base in hopes of balancing a budget that reached the end of the rope. In this case we can say that it worsen a state of affairs in Romania, namely excessive bureaucracy. People are forced to declare additional methods according to certain rules (which are valid until September 2010);

• The decreasing in the contribution rate related to Pillar II, with a direct impact on public confidence in the stability of the system.

All these factors are closely related to slope and the interpretation of people in relation to private pensions. Participants are already realizing the situation of being unable to really dispose of their investment. This can be said because of the way to choose a fund, to transfer you from one to another, to optimize your investment, you're an investor in the true sense of the word, especially if at the original date of accession, the age over 35 years did not require such a thing.

All these decisions that we face as Europeans now are contributing to the demoralization of the participant, the core of the pension system. Regardless of the trends that are manifesting and they differ from one region to another, the negative effects will be similar.

On these trends, they can be highlighted as follows:

• The policymaker is trying to "persuade" international bodies about the nationalization of assets in pension funds, relying on deficit reduction as a direct result (Romania). What is forgotten in this situation is that the state will be more oppressed because those who were stripped of these assets (they lose their substance with the transition to the public) would like to get decent state pension at retirement. And this scenario is at least hilarious if we consider the current system of public pensions.

• Public decision-makers want to use these assets to finance certain projects of national importance (Hungary). It promises to preserve the substance, meaning that it would not get the concept of individual account loss but it will only be transferred to the state. It is assumed that the event is aimed at returning the majority of participants in this pillar.

If you look at these issues is obvious that one can not avoid engaging the political factor. Virtually what all states want is to reduce deficits by giving up the transfer of private pension funds administrators and secondly to determine deficits reconsider these amounts, as and when they hang heavy calculations.

Conclusions

Nationalization of assets, because it is the central topic of the present research, is very dangerous for business, participants and even the state because:

• It is not based on real fundamentals (individual accounts can not be determined as at the public level). After the budget globalization, each essence is lost.

• It can make very risky investments, such as the purchase of the majority of packages from different companies of national interest, which would jeopardize the future of the participants, because it would be strictly relational to profit companies and would lack the guarantees for the so-called shareholders.

• It violates the right of ownership of assets, as held by adherents. Basically, when creating the system of private pension pillar, this gave participants the right to ownership and they could exercise it at will.

Logic would be that each state should leave to the discretion of the individual the way he wishes to continue to accumulate for retirement, with certain exceptions economically sensible. The fact that it gives rise to certain penalties for those who will not go back, it shoot a warning about the future of the tripartite system of pensions.

Acknowledgments

This research was supported by the Romanian Ministry of Education and Research - the National Authority for Scientific Research (NASR) through the National Programme Ideas (PN II), Grant No. 1831/2008.

Note

(1) At the time, although there is a firm commitment from the Government through the enactment of clear legislation that specified a particular program to increase the contribution to the Pillar II, they were stopped. This is not a singular event, running through similar actions in other states.

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THE PUBLIC-PRIVATE INTERDEPENDENCE IN PENSIONS

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Abstract. *Even if there are two elements that can be said to have nothing in common, it would soon be interpreted that the two approaches are part of an integrated whole, their coexistence being imminent for a long time period. The increase in the retirement age, the social contribution rate broken down for the second pillar, the external economic environment, the deductibility of contributions to pillar III, political factors all point to an interdependence that requires to be assessed to maintain a robust system in the private pensions market.*

Keywords: age pension; private pension pillar; the public pension system; social security; efficiency.

JEL Codes: F22, G18, G23.
REL Codes: 11C, 12E, 13K.

1. Introduction

Decisions of either party set out above in the title obviously affects the other, whatever they may promulgate a law or action with clear impact on pensions, whether public or private.

The need for this study should be compulsory due to more frequent changes occurring at both levels. Unfortunately it must be recognized from the outset that private pensions are not independent in terms of collecting and managing funds as they would have believed it was normal because the contributions paid by the state evolves according to the whim of public and policy makers take different forms, such as reducing the rate of contributions to be split up, stopped payments.

Analysis insists mainly on the qualitative aspect, the quantity being considered on other occasions, at which there was a clear interdependence between life expectancy and retirement age (Şerbănescu, 2009c, p. 408). However trends are developing in terms of the second factor, along with the emergence of new factors that impact directly, so it requires a review of the current context. The external factor can not be removed as long as there are expats who may transfer their place to obtain income in a country with lower taxation at the individual and social policy after the withdrawal from active life at least acceptable.

We can not forget that we are committed to a number of Romanian and foreign companies, organized in Romania, called administrators of private pension funds, to follow a plan for breaking down social contributions rates. The fact that we do not respect the plan, in conjunction with other tax factors determined the foreign investors' lack of credibility.

2. The generic factors impact analysis of public-private dualism.

Often the question arises whether the decisions makers from the public environment influence the course of business in private and here reference is made to the entire economic field, even if the main subject of pensions is linked to both the public and private systems, which maintain a state of tension in the specialized markets.

The analysis should be judged on both sides, because both views have good sides and bad sides judged worthy. There is currently a patchwork of information on which ordinary people can decide if you need or merit consideration or on the contrary can be overlooked:

• Increasing the retirement age as a direct result of imbalances in the public pension system. The viability of such measures is questionable, considering the expected impact, and the reference is not purely economic, but rather is related to the psychological factor. As has been emphasized (Şerbănescu, 2009b, p. 54), the link between retirement ages and life expectancy should be considered with more responsibility because no one can make statistically relevant predictions regarding the average life expectancy increases, an essential element decision maker based on public trial;

• Increase contribution rates as result of the same imbalances of the public budget, where the focus is not on increasing the collection efficiency, but the expansion base and tax rates, whether we discuss actual or the recent past measures. However in these situations must be kept a limit of normality. From this point of view can not be overlooked the disorder created as a result of coercing people who receive income from royalties and business shirts to make personal statements;

• Deductibility that even in situations where it is relatively low will be granted or not, suffers from lack of transparency in the collection process. Nothing to date has not legislated clearly how it can benefit from the deductions related to Pillar III where you are forced to annual submission of Statement 200.

3. Key challenges and possible effects on the Romanian economic environment

From the public point of view, the biggest problems are those related to increasing unemployment and reducing wages (as direct effects of the global financial crisis), and lower social security contributions, generated by the elements mentioned above. In terms of reducing wages may rise following question: Does policymakers took into account the fact that the new salary scale that will implement the budget will decrease considerably the volume of social contributions paid into the state budget?

The state interacts by unnecessary pressures on Pillar II, issuing draft laws for public debate that defy the principles relied on its creation.

The problem is vast, if we are to consider all aspects that affect this area. This occurred due to the need to find a solution to the demographic of the population, especially in the old continent. Global trend in terms of solving this problem is to increase the retirement age, while a positive change in life expectancy for men and women. Romania also fall on this trend, however, a better correlation can be made between these two indicators: life expectancy and retirement age.

Romania has the highest retirement ages in all countries, given that we are faced with nearly the lowest life expectancy. Poland is the only Member State that presents close values to those implemented or under implementation in Romania, but in this case it is worth noting that the young population is larger (discussing the weights). (Şerbănescu, 2009c, p. 410). The trend is not unique considering the fact that neighbors to the south also want the retirement age increase, but was is important, by only one year for 2012 analysis.

In this situation we can notice the differences from what is desired in Romania, because the transition is made over a longer time horizon, which allow employees immediate openings for retirement, so unlikely in our situation. Certainly we do not want to be assumed that is positive to create an enabling law to interpretation, but the very short term changes drive the population suspicious.

Also other states have taken steps to increase the retirement age. Latvia for example decided the increase of the age, but starting 2012 or even 2016, so that the effects of the current crisis should maintain "unemployed" many of those who lost their jobs and their age in close to the retirement one. Otherwise there is a risk that they want early retirement, even if it is similar to a lower income. But where there are no jobs it seems the only viable alternative. The problem is that those moments are also subject to future difficulties in the world economy and then we are not able to claim any reason.

In terms of social security is not sufficient to set NAFA (National Agency for Fiscal Administration) as the manager in order to obtain a better collection. The main problem is that many businesses do not have cash to pay these contributions; it is not necessarily ill-will, as soon as impotency. In terms of their breakdown, which is normal for Romanian decision-makers, this practice is rarely found in other European countries, Poland being one example. Thus while reducing the quota-share due to the poor expected returns, although we did not manage to emphasize a sizing tool for their low level, the final decision was to build up a multilayer system, which correlates the investment profile to the pillar participant's age.

Conclusions

Whatever the reasons for these delays that threaten a strong perception by the public private pension the pillars, it is clear that this occurs only shortcomings in the specialized market.

The main problem is how people tend to perceive this continuous change, because you can not omit the fact that over 30% of Pillar II adherents voluntarily opted for this pillar. It is obvious that measures should be designed on a time horizon of at least 10 years, since otherwise the upheaval will be extended to the whole pension system. Efficiency is a crucial element, but the entire environment specific to this area can be confusing shaken by the decisions coming from all sides.

Retirement ages must rise as a result of existing changes in life expectancy, but certainty on this last item should not be overestimated, i.e. the increase should be postponed in the first instance. In connection with determining the range to which it will rise, though it seems a "generous" in the sense that we are talking 20 years, its only positive feature is that it is already known.

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RESERVE CALCULATION OF THE FIRST TO AGRICULTURAL CROP INSURANCE

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Abstract. *In addressing this issue we started the idea of suggesting a new method of calculating insurance premium reserve of agricultural crops, taking into account the particular risk event covered under the policy. There Romanian insurance market agricultural policies have laid a strict stop date of validity, and termination policies stating at harvest (without specifying a strict time), but not later than the date on which the these crops are normally harvested. Personally, I think more correctly the second type of policy, since it can provide, exactly, when it will harvest a particular crop, and to restrict the validity of the policy until a certain date, required (eg 20 July for wheat crop - as provided in policies of insurance companies)*
means that exactly at the critical policy ceases.

Keywords: first-book; risk; uncertainty; agricultural crops; first subscribed; asigurbile risks; the insurance policy.

Premium reserve represents a sum of money to be put in a bank deposit insurance premium for the collection, because insurance company is aware that it is possible to produce a certain probability of insured risk phenomenon and such damage occurs. The natural question is how much of the amount collected serve as a deposit? First established as a reserve amount should be proportional to the total length of the remaining term of the contract provided. For the insurance company premium reserve set is a necessity in case revenues are "*deferred*", to be certain if the damage had not occurred and were partly used to wind damage, it became clear to the termination of the insurance policy. In terms of tax they do not affect imposed on income tax, since it will be taken in the calculation of the current financial year in which the first reservation was established.

Natural hazards that can affect crops have a uniform expression during their growing season, and the law relating to premium reserve calculation does not cover specific aspects of this type of insurance.

Order no. 3109 of 28 October 2003 for implementation of norms on calculation and record the minimal technical reserves for general insurance business, issued by the Insurance Supervisory Commission, states: "premium reserve is calculated monthly by adding quota-part of gross premiums written for periods of insurance contracts expired, so the difference between gross written premiums and gross premium reserve reflects the allocated share of risks expired on the date of calculation. Premium reserve will be obtained by summing up the stock of raw values calculated for each contract.

Determining the value of Rp premium reserve, related to an insurance contract is made using the relationship:

$$Rp = (X: Y) \times PBS,$$

where:
X - number of days corresponding to the unexpired period, corresponding to the gross premium underwritten;

Y - number of days for the period related to the gross premium underwritten;
Pbs - gross written premium."

In crop insurance risk is unevenly distributed during the insured. Relationship calculation above address the risk of being equally distributed throughout the period of insurance, which does not happen in crop insurance.

For example, the insurance taken out in October 2010, with the risk of hail and firecoverage for the culture of wheat, the risk is unevenly distributed. Hail risk – *the risk of major agricultural insurance* – usually picks up in March and the risk of fire culture show maturity, in June-July. Of course, there may be exceptions in the event such risks.

On the other hand, under existing insurance products on the Romanian insurance market after the entry into force of insurance, the insurers liability begins:
• *for crops sown in the event of damage caused by torrential rain - direct effects and the collapse/landslide, since their sowing, and in case of damage caused by hail, fire, storm / hurricane late frost spring and early autumn frost, since their răsăririi;*
• *the fruit of vineyards, in the event of damage caused by all risks insured at the time of flowering;*
• *for fruit orchards, in case of damage caused by all risks insured, full of fruit after binding.*

Insurers liability ceases at the time of harvest (harvest, harvesting, removing roots). There on the Romanian agricultural insurance policies that provided a strict stop date of validity, and termination policies stating the time of harvest (without specifying a strict time), but not later than the date on which it is normally respective crops harvested. Personally, I think more correctly the second type of policy, since it can provide, exactly, when it will harvest a particular crop, and to restrict the validity of the policy until a certain date, required (eg. 20 July for wheat crop – as provided in policies of insurance companies) means that exactly at the critical policy ceases. **What happens in a situation where, due to weather conditions, harvest time and beyond this there is a caused by hail damage on 21 July?** Leaving aside the issue of compensation in such cases, the companies that practice such data imposed as a term of validity of insurance contracts, there is a problem ending date of the insurance policy that will be taken in calculating the insurance premium.

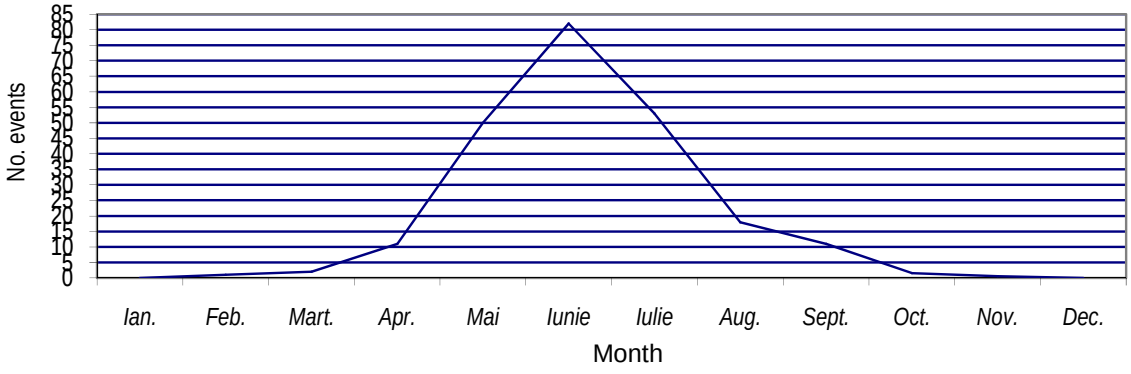
The problem remains only for policies that have not provided a strict time as they expire, and this is to determine the number of days in the part of risk calculation expired on reserve, since, according to Norms no. 5/2001 of the Insurance Supervisory Commission, premium reserve is calculated monthly. Basically, as the date certain, crop insurance is not only the date of entry into force of the policy ("x" days from the date of payment of insurance premium). Taking the example above, the risk expired on October 31, 2010 is zero, and so on 30 November 2010 and 31 December 2010 and 31 January 2011 and 28 February 2011. In this case it is necessary to allocate risk between March - harvest (which may be in June or July or August, depending on the range and variety). According to the rules mentioned above,

$$\text{Raw Rez} = \frac{\text{no. days corresponding period of the contract expired}}{\text{contract period, expressed in number of days}} \times \text{Net premiums written on this contract}$$

Thus, the period from the date the contract is in force until the harvest, but the start of the liability insurer may not coincide with the date of entry into force, but may be later. For example, to insure the fruit of vineyards in March: the entry into force is after ”x“ days from the date of payment of insurance premium, but the responsibility begins with flowering, which usually occurs in May. According to the definition given in Article premium reserve 2, para. 1, until the beginning of flowering, the unexpired risk premium is allocated to zero, whereas virtually no risk existed until then. On the other hand, the contract terminates at harvest, which may occur depending on specific climatic conditions in September or October. Thus, it is virtually impossible to accurately calculate the number of days for the period of the contract.

Below we present two possible ways of calculating the premium reserve, given the risks for which coverage is available on the Romanian market of agricultural insurance: hail, fire, torrential rain, storm, collapse / landslide cultivated early frost of winter, frost late spring and the frequency of their manifestations.

The most common phenomenon among those listed above and cause the most damage, is the phenomenon of hail.



Source: National Meteorological Administration, Bucharest, 2009.

Figure 1. *Distribution of the phenomen of hail on Monday*

The frequency of the event, each risk involved in the formation of a certain percentage of share premium and default insurance premium

	Frequency of insured events per month (%)						
Month	Fire	Hail	Torrential rain	Storm	Collapse / grown landslide	Frost early autumn (before October 31)	Late spring frost (after 10 April)
January	-	-	-	-	-	-	-
February	-	-	-	-	-	-	-
March	2	-	-	-	35	-	-
April	7	-	-	8	45	-	40
Mai	25	10	25	25	15	-	50
June	36	40	25	25	5	-	10
July	25	40	35	30	-	-	-
August	5	10	10	7	-	-	-
September	-	-	5	5	-	40	-
October	-	-	-	-	-	60	-
November	-	-	-	-	-	-	-
December	-	-	-	-	-	-	-
Total year	100.00	100.00	100.00	100.00	100.00	100.00	100.00

As can be seen in the period from November to February there is no risk in order to comply with reality, we suggest that the formula stated in the CSA rules no. 5/2001 be amended as follows:

- winter crops, security agreements during September-February period is calculated risk taking as a start date March 1, then only for policies covering risks: hail, fire, rain, storm, collapse/slide Train grown, late spring frost winter crops, security agreements with effect from March 1, the contingency will be calculated from the date of entry into force of the policy, regardless of the risks covered;
- spring crops, insurance completed by April 1, the contingency will be calculated by taking the April 1 start date, regardless of the risks covered;
- spring crops, insurance completed since April 1, the contingency will be calculated from the entry into force of the policy, regardless of the risks covered;
- contract expiration date: last day of the month stated in the application questionnaire under the heading "estimated date for harvest." It seems appropriate to have such an item in the application for insurance, since according to the varieties / hybrids grown by area of cultivation, harvest time is different. Furthermore, it is estimated to end the policy, it can not be predicted with accuracy (given strict).

While it takes into account all risk evenly dispersed, at least this distribution is made during the risk is manifested (March and April until harvest).

For policies that cover early autumn frost, and enter into life until the end of the period for which cover this risk (usually by 31 October), first reserve will be calculated taking into account the weight of this risk share premium reserve will the other risk premium should be calculated according to the model shown above.

For example, a crop of wheat is provided for all insurable risks, on 20 oct.2010:

• 4% of the insurance premium will be distributed evenly across the period:

date of entry into the validity of the policy	-	the end of the ice cover early autumn
24.10.2010		31.10.2010

• the remaining 96% of the insurance premium will be distributed evenly over the period 03/01/2011 to 07/31/2011.

In this example we have taken into account a 4% share of the risk of early frost in autumn, first-rate, but each insurance company has a certain structure of share premium.

Conclusions

• It must be reviewed and improved security legislation in general, and allocated a special chapter on crop insurance, which have a distinctive character.

• It should also be made a subdivision in the classification of classes of insurance, to clarify specific aspects of crop insurance.

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CONSIDERATIONS REGARDING THE NEED TO DEVELOP AND IMPLEMENT A NATURAL DISASTER RISK FINANCING STRATEGY IN ROMANIA

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Abstract. *Natural disaster risk financing [(1)] provides, in small and medium-income countries, avoiding any major macroeconomic disruptions in case of natural disaster. Having insufficient resources, the establishment, allocation and use of the funds, without a financing strategy, determine the decrease of effectiveness of funds' use due to the allocated amounts on political and bureaucratic criteria or their diversion from the set destinations. This article presents an analysis of the current limits the of natural disasters risk financing system in Romania and solutions for its improvement.*

Keywords: financing strategy, financing sources, natural disaster, compulsory insurance, residual risk.

JEL Code: E6.
REL Code: 8M.

1. Introduction

Lately, there was a *clear trend of increasing severity and frequency* of natural disasters on global, regional and local level. The appropriate management of natural disaster risk requires the existence of significant financial funds. Mobilizing the own financial resources, especially amid the current global financial crisis, it is difficult to be realised by a country with low economic potential. In this context, finding additional financing sources is a problem whose solution must be the government's priority. This is not enough, as in the conditions of scarcity financial sources and without an adequate regulation of their establishment, allocation and use, these funds are often diverted from projects which were intended to be, are allocated based on political or bureaucratic criteria and ineffective or inefficiently used, yielding macroeconomic imbalances. These drawbacks may be eliminated by implementing a natural disaster risk financing strategy which intends to improve the existing legal and institutional framework of resource management in case of a natural disaster.

2. Research status

In the literature there are two approaches regarding the natural disaster risk financing: *ex-ante financing* (pre-disaster) and *ex-post financing* (post-disaster). Essential differences between the two refers mainly to the moment when financing agreements are settled in order to ensure the necessary resources in case of a natural disaster, as well to the employed financing sources. Thus, in an ex-ante approach, the financing agreements are settled before disaster occurs and the main financing sources employed are reserve funds, contingent capital and insurances. Opposite, in the case of an ex-post financing strategy, financial agreements are settled after the disaster, the major sources of financing natural disaster risk being the financial assistance received from various donors, budget reallocations, internal and external credit and increase the level of taxes (Ghesquière, Mahul, 2007, p. 12).

Although theoretically there are only this two approaches, ex-ante and ex post, in practice exists a joint funding strategy that will take into account both the advantages and disadvantages of each of the two approaches will often be a solution. This is typically for small and medium-income countries that, due to the need of covering the resources gap after a natural disaster and in addition to their own budgetary resources, specific to an ex-ante

funding strategy, are forced to apeal at the financial aid received from the international community or domestic and external borrowings, funding sources specific to an ex-post strategy.

Thus, unlike the ex-ante funding strategy, the ex-post funding strategy has a number of *disadvantages* and is characterized by inefficiency and ineffectiveness in the use of resources and insuffiency in terms of ensuring the necessary resources (Mahul, Gurenko, 2006, p. 8). *Inefficient* use of funds results from the impossibility of ensuring the availability of resources immediately after producing the disaster, due to the lack of planning, fund allocation or because of the delays in receiving the international financial aid from various donors. *Ineffective* use of funds means that the allocation of resources after producing the disaster may be done ad hoc, based on political or bureaucratic criteria, not always being distributed to those that need them the most. *Insufficiency* of resources are typical for middle and small income countries, even when contracting loans or receiving grants from various international financial institutions. Regarding the cost of resources, a particularly important element in choosing the financing sources, in case of ex-post financing strategy we may talk about *high opportunity costs* as a result of increased financing needs immediately after the disaster. New debts contracted in the post-disaster stage, in terms of a more expensive capital market, lead to increased debt service (Cummins, Mahul, 2009, p.1).

3. Research methodology

This paper intend to analyze the limitations of the present system of financing natural disaster risk in Romania in terms of used funding sources and the existing social, legal and institutional framework and find solutions to improve this system. The aim is to argue the need for developing and implementing a natural disaster risk financing strategy in order to ensure the regulation, as a whole, the mode of establishing, allocation and use of funds meant to mitigate the effects of natural disasters and return to normality in calamity areas.

4. The limits of the present natural disaster risk financing system in Romania

The main financing sources of natural disaster risk in use today are: budgetary resources, financial aid received from the international community, voluntary insurance for fire and natural disasters and compulsory insurances (only for buildings for housing purposes and only for earthquakes damages, floods and landslides). In addition, there are also used household savings, own resources and donations from the private sector and other legally constituted sources.

The current system of financing natural disaster risk in Romania has a number of limitations which are determined, on the one hand by the features of the employed financing sources and on the other hand by the particularities of the social, institutional and legal framework.

Regarding *the funding sources currently used*, the system's limits are given by:

a) Use, mainly, of budgetary resources as means of loss financing caused by the natural disasters

In Romania, as in the other countries from Southeastern Europe, the main financing source for losses caused by natural disasters remains the national public budget (Gurenko, Zakout, 2008, pp.10-12). Thus, in order to mitigate consequences of natural catastrophes and support the affected population, according to the Law No. 500/2002 on public finances, at the state budget level is establishing *The Government Intervention Fund*. At local level, *The Budget Reserve Fund* is available to local councils, county councils, The General Council of Bucharest Municipality and to the Bucharest sectors councils, in the rate of up to 5% of total expenditures, in accordance with Law No. 273/2006 on local public finances. The usage of this financing solution has the following *disadvantages*:

– implies *retaining by the Government and local administration, in a very large extent, the risk of natural disaster*. In conclusion this action can generate budgetary imbalances at

central and local level of the public finances, on medium and long term, depending on the resulted financing deficit;

- *the volume of budgetary allocations is insufficient* in relation to the economic losses recorded. For example, the earthquake that affected Romania in 1977 caused extensive damages the volume of which was 547 times greater than the allocated budgetary resources and, more recently, during the flooding in 2005, the multiplication ratio was 248 (Gurenko, Zakout, 2008, p. 11). Moreover, reallocation of the budgetary funds to supplement the The Government Intervention Fund and The Budget Reserve Fund may have a negative impact upon the implementation of ongoing programs and/or projects;
- *the public finance legislation does not allow multiple year accumulation of unused credits at the end of the year*. The purpose of these multi year accumulations, made according to the hazard recurrence period taken into account in determining funding needs, is to ensure the budgetary effort reduction that must be made by the Government and by the local authorities in the year when a major natural disaster occurs;
- the bureaucratic issues related to the development and approval of Government Decisions and/or Local (comunal, city, municipal or county) Councils Decisions can cause several *delays in payments* from The Government Intervention Fund and from The Budget Reserve Fund. These delays affect the quality of support and assistance measures that must be taken immediately after the disaster's occurence. However, delays in payments might determine an unjustified exacerbation of funds insufficiency (Dumitru, 2009, p. 1).

b) Disadvantages in using the resources of The European Union Solidarity Fund

This fund intended to support the European Union States Member or the states whose accession to the European Union is currently under negotiation, on the basis of a request, when in this states there is a major natural disaster which causes damages estimated to more than 3 billion euro, at 2002's prices, or is more than 0.6% of GNP. For example, following the severe floodings and landslides in July 2008, the Romanian authorities have requested financial assistance from the European Union Solidarity Fund, within 10 weeks, as required by Council Regulation (EC) No. 2012/2002. Consequently, in the European Union General Budget for the financial year 2009 was allocated an amount of EUR 11.78 million, representing 2.5% the of total direct damages suffered by Romania (about 470.0 million euros). Therefore it can be said that the use of this source of financing has the following *disadvantages*:

- *the financial support is conditioned on the existence of a minimal limit of the recorded damages* (three billion euros, at 2002 prices, or at least 0.6% of GNP);
- is *inefficient* in terms of resource availability over time, liquidities are provided more than one year after the disaster occurs, and the volume of financial resources is *insufficient* for the needs of losses financing, because the allocated amount by the European Union represents only 2.5% of the total damages suffered by Romania (Zelinschi, 2009, pp. 458-459);
- the fund resources are intended *only to the public sector loss financing*, and *their use must take place no later than one year* from the date on which the European Commission transferred the amount to the beneficiary;
- financial support *is not conditioned by taking proactive measures in prevention and mitigation of natural disaster by the affected states*. This financial support has mostly a humanitarian role (Linnerooth-Bayer et al., 2007, p.1);

c) The technical malfunctions of the Law No. 260/2008 on compulsory insurance of housing against earthquakes, landslides or floods

These shortcomings relate mainly to the failure of the basic principles of insurances, as it follows:

- *the insurance premium has a fixed value.* This value is not based on actuarial calculations. However, in determining the insurance premium the real exposure to any or all of the three

risks covered by insurance policy against disasters (PAD) was not taken into account, meaning earthquake, flood and landslide. Calculating the insurance premium has implications for the reinsurance capacity that can be contracted by the Romanian Pool of Insurance against Natural Disasters (PAID). Therefore, a level of insurance premium established under the real actuarial level of the assumed risk leads to a reinsurance premium insufficient to ensure adequate reinsurance and insufficient financial resources for the insurer to sustain the pertaining loss value;

- *in the legal act there are not included legislative provisions relating to the application of a deductible* that makes possible a substantial reduction of the amount of insured damage and costs of assessing damage. In the absence of a deductible, even that the PAID insurance coverage is more attractive to homeowners, it is not sustainable in financial terms without subsidies from the Government;
- Law No. 260/2008 makes no references about the *exemption from compulsory insurance of housing buildings classified as class I seismic risk* to their consolidation. In this case, to include in compulsory insurance those buildings it is cancelled one of the basic principles in insurance, respectevly ”possible or probable damage”. After testing for earthquake resistance, these buildings are a definite loss for PAID. Normally, no insurance company takes a definite claim in coverage;
- Another controversial issue is the *involvement of politics* in the early years of the PAID in the process of establishing the level of insurance premiums and insured amount. Thus, according to legal provisions, the insured amount required and the associated mandatory premium may be amended by Government Decision in the first five years after entry into force of Law No. 260/2008, and after this period, by order of the President of the Insurance Supervision Commission (ISC).

d) The relatively low penetration level of the voluntary insurances for fire and natural disaster on the Romanian market.

According to the ISC Report regarding the insurance activity during 2009, voluntary insurances for fire and natural disasters rank on the 3rd place with 12.91% of total premiums into insurance market of Romania, coming after moto TPL insurances, that have been ranked on the 1st place, with 46.79% of the total premiums, and liability insurance that was ranked on 2nd place with 33.45% of the total premiums. With the entry into force of the compulsory insurance of houses amid the current financial crisis, the real evolution of facultative contracting of insurance policies against fire and other natural disasters can record two trends: either homeowners become more aware of the protection they’re offered by the facultative insurance against the mandatory policies and will opt for buying both types of policies, thus increasing the number of voluntary policies in relation to the penetration of compulsory home insurance, or homeowners will consider themselves sufficiently protected by the mandatory policy, out of purely financial considerations, and will give up a voluntary policy, even if the additional risks are not covered by PAD, according to Law No. 260/2008.

e) the limited capacity of the household savings and the low level of the resources owned by the private business sector that can be allocated in order to finance risk disaster, as a result of financial crisis.

With regard to the existing *social, institutional and legal framework*, the limits of natural disaster risk financing system are given by:

a) the relatively low level of the education of population in the use of insurance as a means of protection of property and life;

b) the perception of the vast majority of people on insurance. In this context, voluntary insurance is often perceived as costly and the mandatory insurance as a fee or a tax;

c) the multitude of normative acts (over 10 laws, ordinances and government decisions) governing the funding of prevention, disaster mitigation and post-disaster actions;

d) the imposibility of trading on the capital market catastrophe bonds (CAT bond);

e) the lack of ex-ante financial agreements, allowing the use of specialized products of the International Bank for Reconstruction and Development (IBRD) in the field of disaster risk management, the Catastrophe Deferred Drawdown Option in case of disaster - CAT-DDO (http://treasury.worldbank.org);

f) the Government's refusal to promote economic or fiscal incentives to households and private sector measures in prevention of natural disasters.

5. Solutions to improve the current natural disaster risk financing system in Romania

a) to amend the existing legislation on the public finances so as to allow deferral of the the unused amounts for the funding of losses caused by natural disasters in the following year. The cumulation of budgetary allocations over several years provides a better standard of allocating financial resources in order to reduce the financial burden upon the state budget and/or local budgets in the year when a disaster occurs;

b) creating an unique reserve fund to finance the natural disaster risk from budgetary resources, called *The Natural Disaster National Reserve Fund*. This fund will be fuelled by annual budgetary allocations, cumulated throughout several financial exercises, depending on the event recurrence period. The annual volume of budget allocations will be determined in relation to the average annual loss – AAL(2). In order to release payment out of this fund, the President should declare State of Emergency, as to the provisions of the 93th Article of the Constitution of Romania;

c) to cover the financing gap, due to the fact that resources needed to pay compensation exceed the maximum amounts that can be covered by The Natural Disaster National Reserve Fund, by PAID and by insurance and reinsurance companies resources, *will create the necessary conditions for trading on the Romanian capital market of CAT Bond and will conclude with IBRD an agreement to access the CAT- DDO*;

d) to *improve the procedure in applying the mandatory insurance of housing in case of earthquake, floods and landslides* is necessary to amend the Law No. 260/2008, as it follows:

- the word "or" in the title and content of the law, when referring to the risks covered by the PAD to be replaced throughout by the word "and" (3) because the PAD is concluded for all three hazards (earthquakes, floods and landslides) not only some of them for their choice. PAD also covers damage occurring after the occurrence of any of the three risks, insured for the amount required;
- the amount of insurance premiums should be determined based on actuarial calculations, taking into account the risk exposure. Moreover, to avoid politicizing the process of establishing the level of insurance premiums and the sum insured in the first five years of operation of the PAID, this process must be under the authority of the president of ISC and not under the Government authority (4);
- buildings under seismic risk class I, following the technical expertise, can be insured only after completion and acceptance of required building works (5);
- a deductible needs to be applied. This makes it possible to reduce substantially the amount of insured damage. For example, according to the RMSI(6) model, applying a deductible of 5% determine a reduction in the amount of insured damage up to a 50% in case of a penetration of 100% of compulsory insurance, about 2.0 billion euros, for an event with a recurrence period of 250 years. Also, by applying a deductible, which may vary depending on the insured risk, general damage assesment costs are reduced. This will be possible as low value losses (e.g.: façade cracks, chimney collapse, window breaking, spout falling etc.) will be eliminated from the management, expertise and assesment processes;

e) forbid to provide the building authorisations (regardless of the nature of construction) in historically proven areas that are exposed to catastrophic risks, especially flooding, natural disaster facing Romania most frequently in recent years. This has the effect

of reducing vulnerability to natural disasters of the people and property and therefore reduces the costs which local authorities must support for prevention of natural disasters;

f) granting of economic or fiscal incentives to households and private business sector for disaster prevention measures, will support the Government and local authorities because, in this case, it helps to reduce community vulnerability to natural disaster such as and expenditure for natural disaster prevention area;

g) preparation and launching of a public information campaign on the advantages of disaster insurance. This has the effect of increasing people's confidence in this risk transfer tool and as such, increasing voluntary and compulsory insurance penetration among the population.

6. Conclusions

Given the *limitations* and *shortcomings* of the current system of financing natural disaster risk in Romania, developing and implementing a *joint disaster risk financing strategy* through which to regulate the establishment, allocation and use in terms of efficiency, efficacy and cost of financial resources in case of natural disaster is *a priority*.

Multitude of legal acts that enact various aspects relating to natural disaster risk financing in Romania could lead to confusion or incorrect application of these legal provisions. This is *the argument* that supports the idea that the natural disaster risk financing strategy in Romania *has to be developed as a single bill, with the force of law*.

This unique legislative document must cover at least the following aspects: (i) the principles underlying the functioning of public-private partnership concluded between the Romanian Government and the insurance industry, (ii) the kind of risks that are financing (iii) the creation, allocation and use of funding sources, (iv) conditions and procedures for contracting debt by the end of the pre-disaster phase, the funding agreements with some domestic and international financial institutions, (v) the role of the Ministry of Finance, the ministries and central government and local authorities in implementing the natural disaster risk financing strategy, (vi) the bodies with responsibilities in controlling and monitoring the implementation of the natural disaster risk financing strategy, (vii) ensuring flow of information.

In developing and implementing a natural disaster risk financing strategy in Romania a number of *specific factors* must be taken into account, such as: (i) the existence or absence of a suitable legal and institutional framework to enable the use of the most modern tools of natural catastrophe risk transfer, (ii) the degree of vulnerability to natural disaster of the exposed elements and the level of residual risk(7), (iii) post-disaster funding needs and the existing debt at a certain time, (iv) cost and availability in time of the various sources of funding.

In conditions of the financial crisis, the establishment, allocation and use of resources, aside from the financing strategy, leads to an effectiveness decrease due to the use of funds allocated amounts on political and bureaucratic reasons or their diversion from the initially set out destinations, causing difficulties in ensuring the necessary level and time availability of liquidities.

Notes

(1) Natural disaster risk financing is the process of managing risk and the consequences of residual risk through insurance, CAT bonds, reinsurance or options.

(2) Average annual loss is measured as the expected annual average value calculated for a long time

(3) – (5) Proposals to amend the Law No. 260/2008 submitted to the Romanian Parliament.

(6) RMSI Private Ltd. is an Indian company specialised in catastrophe risk modelling that established such a model for Romania, in case of earthquake and floodings.

(7) Residual risk is part of the total risk that can not be managed, regardless of prevention and mitigation measures taken and for which the response and recovery capabilities should be maintained.

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Raportul Comisiei de Supraveghere a Asigurărilor asupra pieței de asigurări şi a activității desfăşurate în anul 2009

AGEING AND IMPACT OF THE PAYOUT PHASE OF PRIVATE PENSIONS

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Abstract. *This paper focuses on the impact of ageing on the payout phase of private, DC and DB pension plans, and the role that financial markets can play in facilitating private pensions in helping households to manage retirement wealth. This paper is structured into three sections. The impact of ageing is broader than its financial impact on public budgets; ageing will affect the economy as a whole by lowering employment rates and potential GDP growth; and by affecting productivity, savings, consumption, interest rates and asset valuations.*

JEL Codes: D11, D14, D91, E21, G11, G38, J14, J26.
REL Codes: 11B, 8B, 8F, 8M, 10A, 3D, 6B.

1. Introduction

The immediate concern is the current financial market crisis, the key challenge for pension systems over the medium and long-term is dealing with the implications of population ageing, the design of the payout phase of pensions (in particular, the type of products to channel assets accumulated in defined contribution (DC) pension plans (e.g. life annuities)), as well as to examine the role that financial markets can play in providing adequate private pensions.

Population ageing is the result of steady increases in life expectancy and of fertilities rates falling back from the high level reached in the 1960s.(1) (Table 1, Table 2). This hump-shaped profile of fertility rates has created the so-called the baby boom, that is, a generation or cohorts that are larger than the preceding and subsequent cohorts. Consequently, the impact of the baby boom is temporary as the cohorts born during the high fertility years pass away. The impact of increases in life expectancy, on the other hand, is of a more permanent nature, bar wars or pandemics.

The implication of population ageing is an increase in the number of people of retirement age as a share of the working age population (Table 3). The retirement of the baby boom generations will increase this share as those cohorts retiring will be followed by smaller cohorts. Similarly, improvements in life expectancy directly increase the number of people in retirement, ceteris paribus, as people life longer.

The increase in the number of people in retirement relative to the number of people in working age create serious financial troubles to PAYG-financed pensions (generally, public pensions) as well as to funded pensions (generally, private pensions). Public pensions would see the number of people contributing dwindle relative to those withdrawing benefits, increasing public expenditure on pensions.

Increasing life expectancy also directly raises the amount of savings needed to maintain a certain standard of living at retirement. Yet, population ageing will also affect retirement income stemming from defined benefit (DB) or defined contribution (DC) pension plans. The increase in the number of people in retirement will have important consequences of how to finance retirement and how financial markets could help out in managing accumulated assets and the risks involved, as well as in providing suitable products or instruments to deliver stable incomes in retirement over long periods (e.g. annuities) and to hedge against longevity risk (e.g. longevity bonds).

The main impact of ageing on private pension systems results from improvements in life expectancy, in particular the uncertainty surrounding these improvements (i.e., longevity risk). The retiring of the baby boom generation may slightly affect potential retirement incomes in both DB and DC pensions depending on the downward adjustment of assets values.

However, the biggest impact would stem from the failure to account for improvements in life expectancy. In the context of DC pension plans, people can counterbalance the effects of longer life spans by either saving more or working longer fantasizing about unrealistic returns on their investments. However, the impact of improvements in life expectancy could be relatively small as long as these improvements are foreseeable and are taken into account when planning for retirement.

Unfortunately, future improvements in life expectancy are uncertain. This uncertainty (i.e. longevity risk) carries important risks. Individuals with retirement income stemming from balances accumulated in DC pensions run the risk of outliving their resources, thereby forcing them to reduce their standard of living when they are old. Otherwise, they can use their balances accumulated in DC plans to buy life annuities and thus shifting the longevity risk onto financial institutions providing annuities. Defined-benefit pension schemes as well as annuity providers run the risk that the net present value of their pension promises and annuity payments will turn out higher than expected, as they will have to pay out a periodic sum of income that will last for an uncertain life span.

2. Ageing and the impact of the payout phase on financial markets

Population ageing would increase the liabilities of pension funds providing DB pensions as long as they have not accounted for the improvements in life expectancy. It may also affect their balance sheets through its impact on asset valuations. Pension providers of DB plans have traditionally managed their risks (investment, inflation and longevity risks) as part of their internal risk managing systems they have made capital provisions as a general buffer against fluctuation in the value of their pension commitments.

However, they have begun to turn to financial markets for instruments to hedge against investment, inflation and longevity risk. The shift from DB to DC pension arrangements combined with population ageing brings in additional challenges. People would need to save more and in order to encourage greater savings, financial markets need to be sufficiently developed and structured so that investments can be allocated efficiently, they can deliver adequate returns, and they can cope with changes in relative assets prices and in the composition of portfolios.

Population ageing may have major implications for financial markets, in particular for the relative attractiveness of different asset classes and the role of different financial institutions. The retirement of the baby boom generation is likely to increase the demand for fixed income instruments at the expense of equities and may raise the role of insurance companies at the expense of pension funds, especially in countries where DC plans dominate. The average individual investor of a DC plan may also be expected to be more conservative than the average DB pension fund, further heightening the shift away from equities.

The role of pension funds as long-term, stable, countercyclical investors. Financial market stability may suffer from greater volatility, pro-cyclicality and herding in pension fund investments. The exposure to longevity risk and the lack of financial instruments to hedge this risk, and the insufficient quantities of appropriate asset types to hedge other risks such as interest rate and inflation risk partly explain the limited interest that financial intermediaries appear to show in offering annuity products. Private market solutions to help managing the various types of risks, such as longevity, inflation and interest rates risks are actually forthcoming.

3. The payout phase and retirement income

The shift from DB – in which the amount of retirement benefits is determined largely by years of service – to DC pension plans, whereby retirement wealth depends on how much workers save and how successfully they allocate their assets accumulated in DC, brings to the fore policy issues related to the design of the payout phase and instruments to transform these assets accumulated into a stream of income at retirement.

The efficient allocation of assets accumulated in DC plans requires the managing of risks, such as the timing of annuitisation and longevity risk. Finally, the adequacy of retirement income in pension systems based mainly on DC pension arrangements depends not only on the efficient allocation of assets and returns on investment, but also on the amounts contributed, the contribution period and the length of retirement, which in turns depends on the age of retirement and on longevity.

The main forms of retirement payout options available for allocating assets accumulated in DC pension plans include lump-sums, programmed or phased withdrawals, annuities and any combination of them. The choice among them depends on the balance to strike between flexibility and protection from longevity risk and the country context. Life annuities protect from longevity risk, but they are illiquid, and consequently lack the flexibility that people may face at retirement (e.g., need to pay down debt, health care expenses). Programmed withdrawals and lump-sums provide more flexibility in using these balances but do not protect retirees from longevity risk. Given this trade-off between flexibility and protection from longevity risk, countries that provide a significant level of retirement income already annuitized from their PAYG-financed public pensions (in absolute as well as relative replacement rate seven terms) may be better off allowing more choice and flexibility by letting people allocate their accumulated assets in DC plans as they please – into lump-sums, programmed withdrawals, life annuities or any combination of the above.

Annuitisation can be mandated, which directly eliminates most problems associated with adverse selection. Countries may also promote annuitisation by introducing tax incentives and improving financial education. When using tax incentives, care needs to be taken as regard their design and their relationship with income levels. Independently of the way annuitisation is promoted, policy makers may need to make sure that all retirees are annuitized at very old ages in order to safeguard them from longevity risk or falling back on state pensions. Regarding the main problems facing annuity markets, most stem from adverse selection, lack of competition among providers, and difficulties of dealing with longevity risk, which affects pricing and costs. Adequate regulation is probably the best approach to deal with these problems and promote further expansion of annuity markets. However, it should be noted that the lack of a developed market need not prevent policy makers from requiring or encouraging annuitisation.

Other issue that needs to be addressed relates to the factors determining which institutions should provide annuities and how to promote competition in annuity markets. In practical terms, life insurance companies are better prepared to offer life annuities as they have the technical capabilities, the expertise and, in theory, may be naturally hedged as they may operate in both sides of the market (life expectancy and mortality). However life insurance companies seem uninterested in participating in the market for life annuities, which has the effect of reducing competition and increasing costs. One of the main arguments to explain this lack of participation relates to the problems in dealing with longevity risk, in particular, the lack of financial instruments to hedge against longevity risk and the need to use well defined mortality tables, so that provision and capital put aside can be adequate. Possible alternative providers to insurance companies include pension funds (though care should be taken about capital adequacy requirements), separate financial institutions (though these may lack the broad-based business), and a single entity or state annuity fund. This latter alternative is attracting interest among policy makers, though the issue of how to combine a state annuity fund and life insurance companies competing in the same market may need to be considered

further, as well as issues related to crowding out and incentives to private markets. Countries opting for a centralized annuity provider should guarantee full equal competition. Moreover, the role of a centralized annuity provider should dwindle as the market for annuities develops.

Focusing on the type of annuity products that should be allowed, this decision involves a trade-off between choice, risks and costs. A wide variety of annuity products exist, which are designed to address different annuitants' needs (e.g. bequest, access to stock market returns, inflation protection). However, the direct relationship between cost and the guarantees involved in these products needs to be considered by policy makers – as does the shifting of risk between providers and individuals these products may involve.

On the relationship between costs and guarantees, surveys show that potential annuitants would like products that address as many as their needs as possible, which increases the costs of such product; while at the same time they express a need for reasonably priced, straightforward and easy to understand annuity products. There have been calls for new and innovative annuity products, for example products that combine both pension and health considerations. However, care needs to be taken with the design of such products as pension payment flows are constant and certain but health disbursements can be unpredictable and quite large.

Again, how much risk individuals can and should bear through their DC pensions depends on how large a part these pensions play in overall retirement incomes. Additionally, buying annuities is fraught with risks, in particular the risk associated with the time of purchasing. One product with the potential to address many of these problems are deferred life annuities, which apart from insuring against longevity risk, partially address the time of purchasing risk. Moreover, buying the deferred life annuity at the time of joining a DC plan may help bridge the accumulation and the payout phases. Unfortunately, they do not seem to attract much interest from providers (as they expose providers to the full length of longevity risk) or consumers (financial education studies show that most individuals are unable to assess accurately the advantages of deferring payments). The negative impact on retirement savings of the risk of time of purchasing can also be ameliorated by an electronic quotation system and more a flexible timing of annuitisation.

The main policy recommendation for policy makers (Antolin, 2008) is to mandate deferred life annuities that start paying at very old ages (e.g. at age 85) and allow for the remaining assets accumulated in DC accounts to be allocated as programmed withdrawals (preferably with flexibility to face contingencies). With these arrangements policy makers accomplish a balance between flexibility and protection from longevity risk. These arrangements, apart from eliminating the risk of outliving one own resources and falling into poverty, largely offset the timing risk.

Policy proposals to mandate deferred annuitisation of parts of household wealth can only be operational if there is supply of adequate financial instruments. In this context, there must be an entity, most likely a financial institution, that is willing to take the other side of the transaction. Such willingness is likely to depend on the existence of sufficient quantities of suitable financial instruments to enable them to hedge considerable parts of the associated risks.

Furthermore, mandating a deferred life annuity that starts paying at old age removes any worries about the type of annuity products to allow. People should be allowed to use their remaining balances to buy any type of annuity products if they wish, as protection from longevity risk is guarantee. Additionally, this may encourage further development of annuity markets and attract providers as well. In the context of providers, the discussion suggests that policy markers should allow any provider as long as they are sufficiently regulated and competition is guaranteed. Finally, the current financial turmoil has brought to the fore the importance of the timing of retirement for the adequacy of retirement income when holding assets in DC pensions to finance retirement.

Longevity risk poses a challenge to defined benefit and annuity providers, and to the development of annuity markets. Longevity is steadily increasing in OECD countries and it is expected to increase even further. This is a positive development, but one that may have dire consequences to pension finances. At the heart of longevity as a problem for society is uncertainty about the rate of future improvements in life expectancy, that is, longevity risk. Longevity risk is a problem for defined benefit and annuity providers as they run the risk that the net present value of their pension promises and annuity payments will turn out higher than expected, as they will have to pay out a periodic sum of income that will last for an uncertain life span. Moreover, to encourage the supply of annuities, providers need to be able to manage longevity risk by off-loading, hedging or sharing some of their long-term and longevity risks.

Unfortunately, there is a lack of financial instruments to hedge against this longevity risk. Pension funds and annuity providers would like to transfer longevity risk away to institutions better placed to deal with it. However, although financial instruments to hedge against interest rate and inflation risks are readily available, there is a lack of similar instruments to hedge against longevity risk, thereby complicating risk management by pension funds and hindering the expansion of the annuity market.

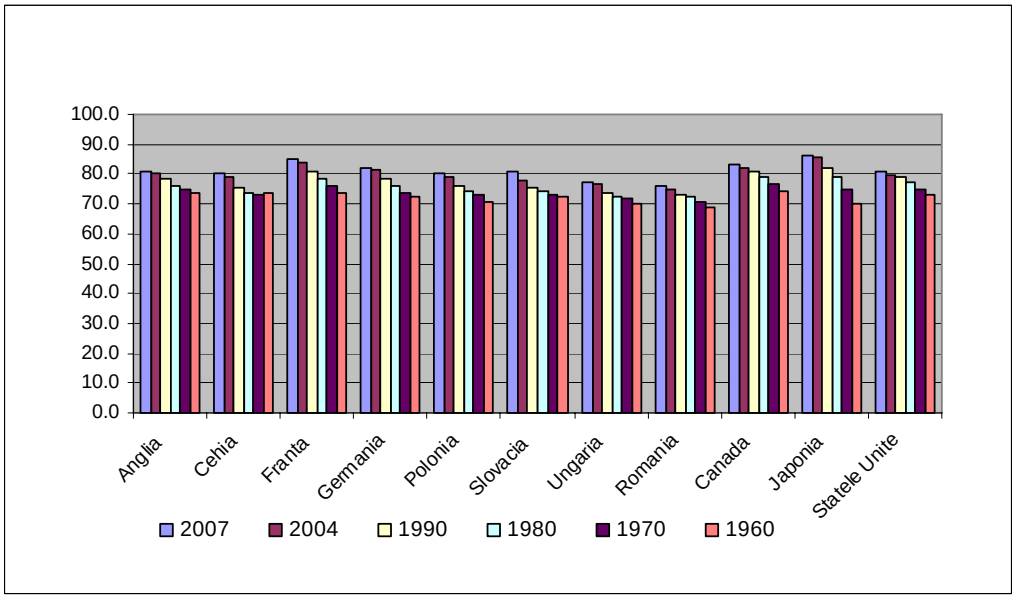
Suggestions that governments could encourage ways in which annuity providers and DB-plan sponsors could better hedge their life expectancy risks, for example, by supporting market-based solutions to addressing longevity risk issuing longevity bonds (Blake et al., 2006) may face practical problems as they are themselves heavily exposed to longevity risk through public pension systems and social security schemes (Antolin, Blommestein, 2007). Other suggestions like using swap markets to hedge longevity risk may not be feasible after the recent market turmoil. Additionally, the lack of large quantities of long dated government bonds to match liabilities does not help pension funds or annuity providers either.

However, governments can take other steps to encourage the development of a private market in longevity hedging products by producing a longevity index. Governments, through their national statistical institutes, could produce a reliable and widely accepted longevity index to be used as a benchmark for pricing hedging product

Conclusions and proposals

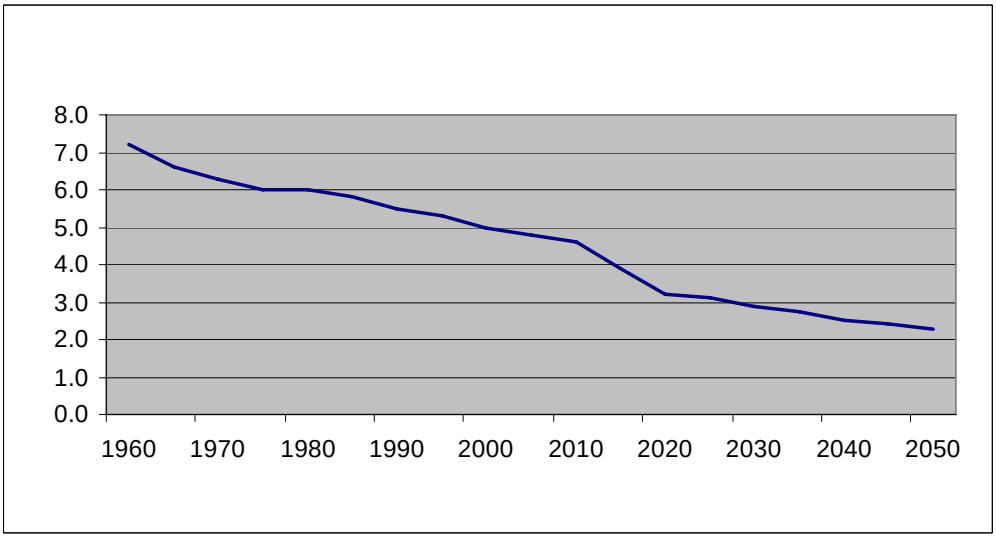
- In DC systems, protection against longevity risk is critical and it is provided by life annuities. There is a balance to strike between flexibility and protection from longevity risk. Balance that needs to take into account the country context and the coherence between the accumulation and the payout phases of pensions as well.
- Countries should allow full choice and flexibility to allocate assets accumulated in DC pensions when retirees already receive a relatively large part of their retirement income annuitized through PAYG-financed pensions and DB pensions.
- Countries where assets accumulated in DC pensions are the main source of retirement income should make sure that retirees allocate part of their assets to buy a life annuity that protects them from longevity risk and provide enough retirement income at old age.
- Countries should allow any provider as long as they are sufficiently regulated and competition is guaranteed. In particular, solvency ratios should be relatively high to protect retirement income from default on the part of the provider.
- Countries where annuity markets are small or not existent at all could institute a centralized annuity fund provider, but should allow insurance companies and other provider to enter the market in the same footing. Full equal competition should be guarantee. Moreover, the role of the centralised annuity fund provider should dwindle down as the market develops. Countries that decide for pension funds providing annuities should make sure that appropriate prudential regulation is in place to protect retirement income.

- ❖ Governments can help with long-tail risks, in particular longevity risk at very old ages, and with aggregate longevity risk. In countries where liabilities from PAYG-financed pensions are relatively small, governments could consider issuing longevity-indexed bonds.
- ❖ Governments could also consider issuing more long-term and inflation-indexed bonds, to be bought by domestic pension funds and insurance companies.



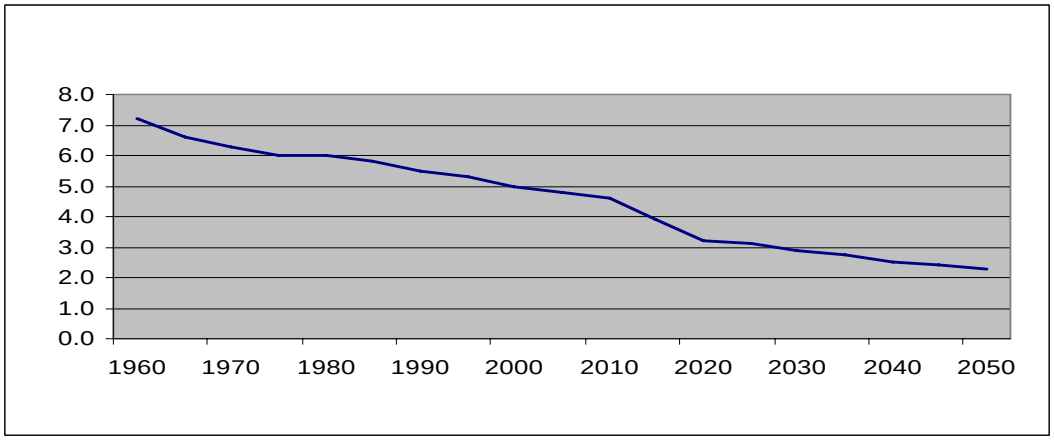
Source: OECD Health Database (www.oecd.org).

Figure 1. *Life expectancy at birth in countries from EU, Canada, USA and Japan*



Source: OECD Health Database (www.oecd.org).

Figure 2. *Fertility rate*



Source: World bank data base (www.data.worldbank.org/indicator), OECD Health Database (www.oecd.org).

Figure 3. *Old age dependency ratio*

Note

(1) Throughout this paper population ageing refer to the increase in the share of old-age people (those aged 65+) over the working age population (those aged 16 to 64).

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SECTION II

CORPORATE FINANCE

FUNDAMENTING OF AN AGGREGATE INDICATOR FOR CLASSIFYING ENTERPRISES BASED ON THEIR FINANCIAL RESULTS

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Abstract. *Financial analysis presents o wide set of ratios that can be used for assessing and comparing the return and the risk of the enterprises but in order to realize a classification of them it is necessary to reduce the number of ratios. This condition is satisfied through the principal component analysis which allows the transition from a causative space with a great number of variables to an equivalent but significant smaller space. In this context, the purpose of the present paper is to build an aggregate indicator which is necessary for ranking enterprises based on their financial results.*

Keywords: aggregate indicator; principal components; return, risk; classification.

JEL Codes: C81, G30.
REL Codes: 9B, 11Z.

1. Introduction

Principal components analysis is a technique of multidimensional analysis, widely applied in the financial field, which seeks to find a specific method for transforming the initial features of a group of objects in order that through this transformation an optimal representation of them could be assured and using o more reduced number of features (Ruxanda, 2005).

Investment decision is motivated by the best return of the capital raised in this sense and any capital investor looks forward for the increasing of the return for the funds invested. Nevertheless, at the same time, it have to be considered the risk assigned to the investment, together with the liquidity and solvability levels on the one hand and tax risk on the other hand. For risk and return analysis there is a wide series of ratios, each of them providing useful information, but it is this great number of ratios that does not allow the investor to easily take a decision and to have a broad image upon the activity carried out by an enterprise. Therefore, an aggregate indicator based on the initial financial ratios which could allow for the classification of the enterprises analyzed would be very helpful. The authors in this paper aim to determine such an synthetic indicator that would preserve as much as possible of the initial information.

2. Principal component analysis

This technique of principal component analysis aims to address the issues generated by the complexity of the initial causative space by simplifying it that is by determining a transformation that realizes the transition from the causative space, with a great number of variables to a new one, equivalent and of a much reduced dimension. This transition takes place with the condition of maximizing the variability of the new space, called principal space, thus by retaining the maximum of information from the initial space. Variables from this new space represent even the *principal components*, with the following properties: on the one hand, they are linear combinations of the original variables and are uncorrelated taken two by two and the vectors that define them are of unity length (geometrically, the principal components form an orthonormal system of vectors); on the other hand, principal components are characterized by maximal variance, that is the first principal components is a normalized linear combination of maximum variance, the second principal component is a linear combination uncorrelated with the first component and has a variance as great as possible but lower than that of the first component etc.

The basic idea in the principal component analysis is to find a transformation that links the two vector spaces of different dimensions:

$$\psi : \mathbb{R}^n \rightarrow \mathbb{R}^k , \; k \ll n \tag{1}$$

In order to briefly describe the mathematical model of the principal component analysis, we will recall that the principal components were defined as linear combinations of the original variables, in the following manner:

$$w_i = \sum_{j=1}^{n} \alpha_j^{(i)} x_j, \; i = \overline{1,n} \tag{2}$$

where w_i is the ith principal component, x_j is the jth variable form the initial n-dimensional causative space and $\alpha_j^{(i)}$ is the jth component of the ith linear combination which defines the respective principal component. Using the matrix notation, if we consider $w = \begin{pmatrix} w_1 \\ w_2 \\ \vdots \\ w_n \end{pmatrix}$ the vector of the n principal components (the variables of the new space), the matrix A of n x n dimension with its columns being represented by the vectors $\alpha^{(i)}$ that define the linear combinations, $A = \begin{pmatrix} \alpha_1^{(1)} & \alpha_1^{(2)} & \dots & \alpha_1^{(n)} \\ \alpha_2^{(1)} & \alpha_2^{(2)} & \dots & \alpha_2^{(n)} \\ \dots & \dots & \dots & \dots \\ \alpha_n^{(1)} & \alpha_n^{(2)} & \dots & \alpha_n^{(n)} \end{pmatrix}$, and $x = \begin{pmatrix} x_1 \\ x_2 \\ \vdots \\ x_n \end{pmatrix}$ the vector of the variables from initial causative space, then equation (2) can be written as follows: $w = A^t x$ (3)

Let consider w and α being two generic notations for a principal component and, respectively, for a vector whose components define a normative linear combination. In order to determine the principal components, we have to maximize $VAR(w)$. This can be achieved through solving of the following system:

$$\begin{cases} w = \alpha^t x \\ \max VAR(w) \end{cases} \tag{4}$$

Taking into account that α generates a normative linear combination, system (4) can be equivalently rewritten:

$$\begin{cases} \max \alpha^t \Sigma \alpha \\ \alpha^t \alpha = 1 \end{cases} \tag{5}$$

where Σ is the variance-covariance matrix of the original variables.

It can be easily demonstrated that the vectors $\alpha^{(i)}$ are exactly the eigenvectors of the variance-covariance matrix and the maximum value of the squared form $\alpha^t \Sigma \alpha$ is even eigenvalue λ that corresponds to the eigenvector α. It is obvious that the matrix Σ will have n eigenvalues; supposing that these eigenvalues are so ranked that $\lambda_1 \geq \lambda_2 \geq \cdots \geq \lambda_n$, then the equality that follows is true:

$$VAR(w_1) \geq VAR(w_2) \geq \cdots \geq VAR(w_n) \quad (6)$$

Therefore, as the number of the principal components retained in the analysis increases, the quantity of information from the initial causative space preserved increases also, but at a decreasing rate.

It is worth to be remembered, as important properties of the principal components, the fact that they entirely preserve the total variance (V_T) form the initial space:

$$V_T = \sum_{i=1}^{n} VAR(x_i) = \sum_{i=1}^{n} \lambda_i \Leftrightarrow tr(\Sigma) = tr(\Lambda) \quad (7)$$

where Λ is the variance-covariance matrix assigned to the principal components vector w and it is a diagonal matrix of the following form $\begin{pmatrix} \lambda_1 & \cdots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \cdots & \lambda_n \end{pmatrix}$.

Principal components keep entirely the generalized variance (V_G) also, from the initial space:

$$V_G = |\Sigma| = |\Lambda| \quad (8)$$

Taking into account all the reasons presented above it might be considered that the principal components analysis is not something else than a simplified re-expression of the initial causative space, this simplification being done with the restriction of maximizing the quantity of information conserved from the initial space.

3. Case study regarding the grounding of an aggregate indicator for the ranking of the enterprises

In this paper, the authors applied the method of principal components analysis, for the year 2009, to a sample of 40 enterprises in the manufacturing sector listed on the Electronic Stock Exchange Rasdaq Bucharest, in order to rank them and to identify the most performing enterprises. The analysis was based on a set of 9 representative financial ratios computed for the companies in the sample, namely: CR – current ratio, QR – quick ratio, P – profit ratio, ROA – return on assets, ROE – return on equity, IR – interest rate, TB – tax burden, FD – short term fiscal debt ratio and S – solvability. Their specific method of calculation (Stancu, 2007 and Vintilă, 2006) is presented below: CR = Current Assets/Current Debt, QR = (Current Assets – Inventories)/Current Debt, P = Net Income/Total Assets, ROA = (EBIT – Tax)/(Fixed Assets + Net Working Capital), ROE = Net Income/Equity, IR = Interests/Financial Debt, TB = Total Tax Expenses/Added Value, FD = Fiscal Debt/Current Debt and S = Total Assets/Total Debt. Using the principal component analysis have been determined the aggregate indicators which are mostly based on the initial 9 indicators. These new indicators were employed for the classification of the enterprises in the sample as regard to their value of the aggregate indicator. All the indicators used in the analysis were expressed as relative values (as ratios measuring return and risk). To assure the comparability of the data, the values for the initial ratios were standardized before applying the principal component technique. The standardized value = (initial value – mean)/standard deviation.

For the beginning the descriptive statistics were calculated (Table 1):

Table 1

Descriptive statistics

Descriptive statistics	CR	QR	P	ROA	ROE	IR	TB	FD	S
Media	3.153198	2.124945	0.076059	0.255987	0.563093	0.159501	0.371679	0.11842	12.31336
Standard Error	0.529689	0.426444	0.090893	0.254476	0.391496	0.069498	0.150347	0.021078	5.625423
Mediana	2.190221	0.959961	0.002807	0.00545	0.03577	0.076292	0.194646	0.073028	3.924071
Abaterea std.	3.350048	2.697071	0.574859	1.609448	2.476038	0.439544	0.95088	0.133308	35.5783
Sample Variance	11.22282	7.274194	0.330463	2.590323	6.130763	0.193199	0.904173	0.017771	1265.815
Kurtosis	2.033955	2.850861	37.1746	38.70502	17.99433	36.71088	16.11899	3.921714	36.34395
Skewness	1.663489	1.894569	5.987691	6.175498	4.339819	5.949978	4.029068	1.917895	5.914496
Minimum	0.062157	0.062157	-0.2751	-0.42687	-0.32936	0	-0.55912	0	0.632556
Maximum	13.33502	10.20769	3.561204	10.10522	12.20931	2.816719	4.636289	0.59859	226.9032
Sum	126.1279	84.9978	3.042365	10.23947	22.52371	6.380058	14.86718	4.736807	492.5344
Count	40	40	40	40	40	40	40	40	40

The higher the standard deviation the higher is the variability among companies as regard to the feature (ratio) analyzed. In our case, the standard deviation has increased values for all the ratios considered, which means that the differentiation among companies is high, forming a space with a great variability within which the structure of causative dependencies is especially complex and it is difficult to perceive when we work only with two dimensions.

Table 2 shows the variance-covariance matrix for all the 9 original variables (ratios being discussed). Obviously, the elements on the principal diagonal of the matrix are of unity value:

Table 2

Correlation coefficients matrix

	CR	QR	P	ROA	ROE	IR	TB	FD	S
CR	1.00	0.96	0.40	0.35	0.12	-0.19	-0.13	0.47	0.11
QR	0.96	1.00	0.53	0.49	0.23	-0.19	-0.10	0.56	0.14
P	0.40	0.53	1.00	0.99	0.56	-0.06	-0.03	0.56	-0.03
ROA	0.35	0.49	0.99	1.00	0.68	-0.06	-0.02	0.57	-0.02
ROE	0.12	0.23	0.56	0.68	1.00	-0.06	-0.02	0.40	-0.05
IR	-0.19	-0.19	-0.06	-0.06	-0.06	1.00	-0.03	-0.19	-0.05
TB	-0.13	-0.10	-0.03	-0.02	-0.02	-0.03	1.00	0.24	-0.16
FD	0.47	0.56	0.56	0.57	0.40	-0.19	0.24	1.00	0.31
S	0.11	0.14	-0.03	-0.02	-0.05	-0.05	-0.16	0.31	1.00

The higher the correlation coefficient the more intense is the link between the two variables. From the correlation matrix it can be noticed that the most powerful correlations are those between ROA and profit ratio, between current and quick ratios and between ROA and ROE. Coefficient correlations of value greater than 0.7 (absolute value) reflect an intense link between those indicators. High correlations that exist among some of the ratios analyzed lower their individual significance, on the one hand, and highlight the existence of *informational redundancies*, on the other hand: there is an important quantity of information dissipated in the links between variables.

In the following part of the paper, we will calculate the eigenvalues of the correlation matrix. Table 3 contains the eigenvalues for the 9 principal components, only the first four being kept in the analysis based on Kaiser' criterion, which states that only the components with eigenvalues > 1 are retained; it doesn't worth to keep the components with variance lover than that of the original variables (= 1, since are standardized). As regard the covering proportion, those four principal components preserve 82% from the total variance.

Table 3

Eigenvalues of the principal components

	Eigenvalue	% Total variance	Cummulated Eigenvalue	% Cummulated Variance
1	3.716219	41.29132	3.716219	41.2913
2	1.510610	16.78456	5.226829	58.0759
3	1.137696	12.64106	6.364525	70.7169
4	1.011231	11.23590	7.375756	81.9528
5	0.897363	9.97070	8.273119	91.9235
6	0.438723	4.87470	8.711842	96.7982
7	0.256631	2.85145	8.968473	99.6497
8	0.028645	0.31828	8.997118	99.9680
9	0.002882	0.03202	9.000000	100.0000

The graphical representation of all the principal components using their eigenvalues is given in Figure 1. It can be noticed that only the first four are representative while the following have values that tend toward zero.

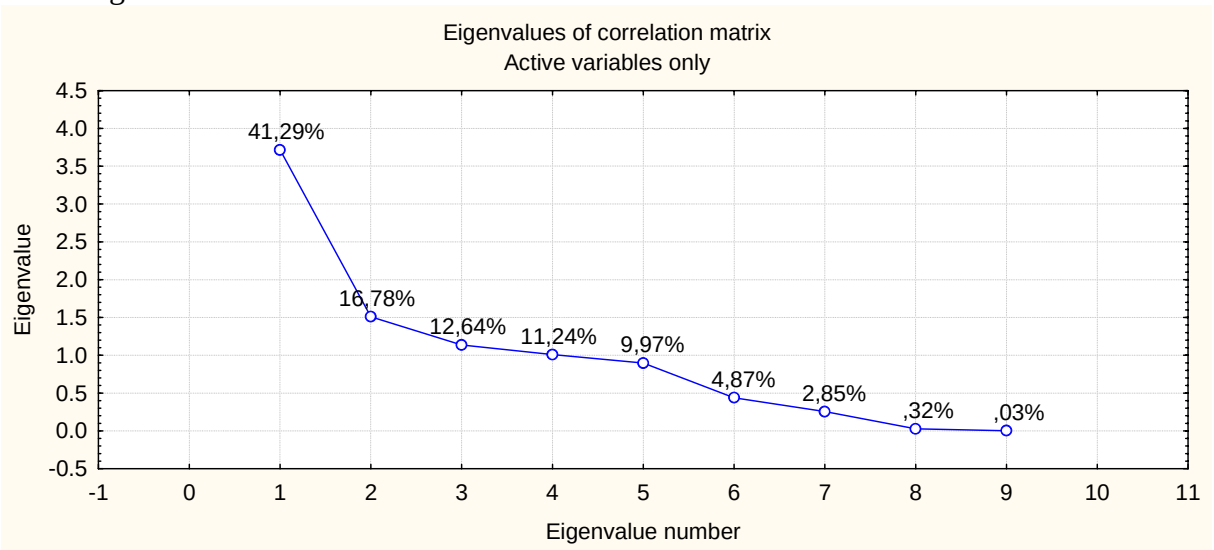

Figure 1. *Eigenvalues*

The first principal component takes 41.29% of the initial information and therefore will be further used to realize a reliable classification of the enterprises. The first two principal components take together 58.08%, the first three take a cumulated proportion 70.72% and the first four principal components synthesize 81.95% of the initial information, which is considered to be satisfactory. As opposed to the 9 initial ratios, the causative space restrained to four principal components that preserve the initial information with a loss of about only 18%.

The principal components are "abstract factors" (they can be named as "synthetic indicators"). For their appropriate interpretation, correlation coefficients between the initial ratios and the four synthetic new indicators (the first four principal components) will be computed, as it is shown in the factor matrix. The factor matrix is very important for our analysis as its elements (known also as *intensities of the factors*) represent correlation coefficients between the original variables and the principal components. The expression for computing any of its elements is: $\rho_{ij} = \frac{\sqrt{\lambda_j}}{\sqrt{VAR(x_i)}} \times \beta_{ij}, i = 1,2,\ldots,n \qquad j = 1,2,\ldots,k$, where k is the number of principal components retained in analysis.

Table 4

Factor matrix

	Factor 1	Factor 2	Factor 3	Factor 4
CR	-0.708409	-0.561112	0.038220	0.336797
QR	-0.810933	-0.464246	0.031293	0.257108
P	-0.868358	0.338791	0.133449	0.002116
ROA	-0.874530	0.403561	0.128850	-0.050837
ROE	-0.614294	0.519682	0.121687	-0.143357
IR	0.219034	0.291882	0.413303	-0.160518
TB	0.021635	0.295688	-0.880863	0.032828
FD	-0.770042	-0.067700	-0.372713	-0.306596
S	-0.138384	-0.505292	0.019557	-0.829282

By analyzing the matrix factor it can be observed that the first principal component is highly correlated with liquidity ratios (current and quick ratios), with return and profitability ratios (return on assets and profit ratio) and also with short term fiscal debt ratio. It can be noticed that this component take information of various nature from the initial variables (about return, risk and also fiscal information). The second principal component take information related to the factors that are not included in the model, the third one is highly correlated with the degree of fiscal burden and the fourth one synthesize information about the solvability degree of the companies in the sample.

The scores of the companies computed in the factors space are determined in Table 5 and they allow for a ranking of the companies using the ratios included in the analysis and the factors selected.

Table 5

The scores of the companies for the first four principal components

	Factor 1	Factor 2	Factor 3	Factor 4		Factor 1	Factor 2	Factor 3	Factor 4
SC 1	0.33301	0.15236	0.32550	0.07298	SC 21	-0.86175	-143.827	-0.37108	0.19728
SC 2	0.09413	-0.34331	0.18404	0.59304	SC 22	0.15394	-0.00652	0.11125	0.25290
SC 3	0.71571	0.17329	0.70894	-0.12029	SC 23	0.14867	-0.25410	0.34026	0.29251
SC 4	0.25825	0.30582	0.20002	0.11883	SC 24	0.24586	0.37711	0.13794	0.07488
SC 5	0.49637	0.25114	0.25000	-0.14527	SC 25	0.55588	0.40575	0.35209	0.13821
SC 6	-115.699	-205.083	-0.28728	0.69634	SC 26	0.53952	0.32286	0.38005	0.13030
SC 7	0.24934	0.01882	-0.05837	0.11463	SC 27	0.54875	0.41600	0.34063	0.06745
SC 8	-0.12224	-0.34016	-0.02420	0.31461	SC 28	-115.133	-227.470	0.21457	182.558
SC 9	0.04417	-0.44073	0.34733	0.77843	SC 29	0.25385	-0.00358	0.09895	-0.00272
SC 10	0.39402	0.28472	0.09731	0.06570	SC 30	-0.21666	-0.55593	0.14136	0.62762
SC 11	0.49772	0.27795	0.05174	-0.03425	SC 31	-0.94057	-145.607	-0.47585	0.63786
SC 12	0.01702	103.853	-464.066	-0.74837	SC 32	0.35229	0.19037	0.09447	0.22920
SC 13	0.84652	143.462	246.773	-106.278	SC 33	0.28537	0.29472	-0.11438	-0.21472
SC 14	-530.198	244.158	0.57180	-0.39190	SC 34	0.34762	0.08956	0.18636	0.33087
SC 15	-0.68131	-148.302	-0.23660	0.51453	SC 35	0.73175	0.20897	-0.02340	0.12963
SC 16	0.74531	110.143	-289.934	0.25577	SC 36	-0.13835	-0.19237	-0.24653	-0.02833
SC 17	0.29416	0.05687	0.30924	0.25410	SC 37	-0.31599	-243.933	0.02927	-544.204
SC 18	0.54424	0.43492	0.21624	0.01351	SC 38	0.14569	0.17389	0.03439	0.16464
SC 19	0.57409	0.13541	0.40761	-0.08159	SC 39	-0.42480	213.750	0.31762	-0.92481
SC 20	0.53983	0.41988	0.31404	0.12692	SC 40	0.35890	0.13485	0.14696	0.17873

It has been shown earlier that the first principal component synthesize the major part of the initial ratios and offer important information about return, liquidity and the short term fiscal debt of the companies. Therefore we intend to realize a classification of the companies

after this first characteristic. Table 6 summarize the results of the classification using the first component as being the aggregate indicator that ranks the companies analyzed based on their results:

Table 6

The classification of the companies using the first principal component

No.	Soc	Factor 1	No.	Soc	Factor 1	No.	Soc	Factor 1	No.	Soc	Factor 1
1	SC 13	0.84652	11	SC 11	0.49772	21	SC 29	0.25385	31	SC 36	-0.13835
2	SC 16	0.74531	12	SC 5	0.49637	22	SC 7	0.24934	32	SC 30	-0.21666
3	SC 35	0.73175	13	SC 10	0.39402	23	SC 24	0.24586	33	SC 37	-0.31599
4	SC 3	0.71571	14	SC 40	0.35890	24	SC 22	0.15394	34	SC 39	-0.42480
5	SC 19	0.57409	15	SC 32	0.35229	25	SC 23	0.14867	35	SC 15	-0.68131
6	SC 25	0.55588	16	SC 34	0.34762	26	SC 38	0.14569	36	SC 21	-0.86175
7	SC 27	0.54875	17	SC 1	0.33301	27	SC 2	0.09413	37	SC 31	-0.94057
8	SC 18	0.54424	18	SC 17	0.29416	28	SC 9	0.04417	38	SC 28	-115.133
9	SC 20	0.53983	19	SC 33	0.28537	29	SC 12	0.01702	39	SC 6	-115.699
10	SC 26	0.53952	20	SC 4	0.25825	30	SC 8	-0.12224	40	SC 14	-530.198

4. Conclusions

Using the first principal component which synthesize information about return, liquidity and fiscal debt, it can be noticed that the most performing company is that symbolized SC 13, fallowed by SC 16. The least performance is obtained by SC 14. Using this first component and the synthetic ratios, both detailed characterizations of the enterprises and an assignment of them to different classes, based on their importance, can be achieved.

The purpose of the analysis is also that of constructing classes, groups or clusters of observations, companies in our study, that are informationally significant and relevant. Thus, the first four ranked enterprises could present similarities as regards to the return dimension, the level of profitability and that of liquidity. These big-sized companies had good financial performance and high market value in 2009. Profitable medium-sized enterprises are those ranked between 5th and 17th; they realized good results in 2009 and have a level of liquidity that allows them easily access debt financing. Smaller enterprises, generally non-profitable, ranked in the second part oh the classification, had evolutions of different patterns regarding the profitability and the liquidity levels.

Besides the reducing of the number of dimensions for the initial causative space and eliminating of the informational redundancies, principal component analysis manage to highlight also the influence of the common factors, latent, upon the original variables. It is plausible to consider that an important part of the relevant information contained in the original variables could be explained by the intermediate of a reduced number of latent factors (Simar, 2004). The basic idea is presented here. Each of the initial variables (which in the terminology of the factorial analysis are called *indicators* or *tests*) is influenced by three categories of factors: *common*, which act upon all the indicator variables, *individual* and *residual* (*errors*), the former two categories acting individually, upon each of the variables included in the analysis.

Thus, the principal components analysis together with the methods and techniques of form recognition represent sound analytical instruments with a special practicability to a multitude of economic analysis issues.

Acknowledgements

In this paper is disseminated as part of the research results obtained in the Exploratory Research Project PN-II-ID-PCE-2008-2, no.1764, CNCSIS, financed from the state budget through the Executor Unit for Superior Education and University Scientific Research Activity Financing, Romania.

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INVESTMENTS EFFICIENCY IN RENEWABLE RESOURCES EXPLOITATION – THE IDENTIFICATION OF RISK FACTORS ASSOCIATED WITH PRODUCTION OF ENERGY FROM RES

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Abstract. *The development of renewable energy market requires overcoming numerous barriers producers of energy from RES confront with. The obstacles, identified and presented in this study, include political, legal, organizational and institutional, informational and educational, economical and financial barriers. Considering these limitations, the analysis on the efficiency of certain investments in exploitation of renewable resources was made based on multi-criteria analysis methods, identifying, thus, the influence of those barriers on the decision-making of producers of energy from RES regarding feasibility of investment projects.*

Keywords: barriers in RES exploitation; multi-criteria analysis; investments efficiency; sustainable development.

JEL Codes: Q21, Q28, C44.
REL Codes: 15F, 15G, 10J, 20I.

1. Introduction

The development of the renewable energy sector contributes to the economic growth, improves living standards of communities where those sources are exploited and diminishes considerably the environmental pollution process. Yet, this sector's development requires elimination of multiple barriers existing in the way of the efficient exploitation of RES-E. The nature of these barriers, as well as ways to overcome them, have been analyzed in numerous studies such as those of Sathaye (2001), Moonaw (2001), Hoogwijk and Graus (2008), Soeren and Weinstein (2008) or Moreira (2008). Moreover, definition and enumeration of RES-E development barriers were made in reports such as RETD (2006) or in specialty studies such as Stangeland (2007) or Hoogwijk and Graus (2008), Krewitt (2008), Resch (2008), Edenhofer (2006), Pizer (2006) etc.

Laitner (2009) was the first to have ranked the barriers according to the magnitude of the impact on beneficiaries and highlighted the interaction relation between them and costs, technologies, innovations and implementation policies, interactions which affect efficient exploitation of renewable resources.

Considering the principles of sustainable development, the application of multi-criteria analysis proves useful in the identification of proper strategies for the exploitation of renewable energy resources. The criteria taken into consideration, as well as the weight coefficients associated to them, vary according to economies' characteristics, respectively to the analyzed regions. Thereby, the results of researches made in a certain context cannot be taken over and used on another set of data. This explains the high number of studies made on this subject. Such analysis were made by Ramanatham (1999), Gal and Hanne (2003),

Figueira and Roy (2002), Beccali (2003) or Solnes (2003) and Beynon (2005). Thus, Papadopoulos et al. (2007) suggests a multi-criteria analysis of Greece's energy policy by taking into consideration various scenarios of renewable resources exploitation aiming sustainable development. Their study highlights the fact that wind power exploitation is the most feasible option considering the analyzed criteria (economic, social, environmental). Similar analysis were also made by Diakoulaki et al. (2007), Polatidis et al. (2003, 2004, 2006), Venetsanos et al. (2002) for various regions of Greece, in view of indentifying types of necessary policies and measures to boost the exploitation of renewable resources. Authors underline in their studies the necessity to consider the perspectives of various groups of interests involved in the energy sector in terms of the criteria used in the analysis of the decision-making on the national energy policy. The same suggestions are enunciated by Cavallaro et al. (2005), Beccali et al. (2003) in the studies made by them, by taking into account economical, socio-cultural and environmental traits specific to various regions of Italy. The main goal of those researches is identification of adequate policies for stimulation coherent renewable energy resources exploitation based on sustainable development principles (Dutra et al., 2008, Pereira et al., 2008).

2. Analysis of barriers related to RES exploitation

In our country, we could identify various barriers raised against the development of the RES-E sector, which we classified into three major categories: political, legal, organizational and institutional barriers; informational and educational barriers; economic and financial barriers.

2.1. Political, legal, organizational and institutional barriers

Unfavorable laws and methodologies in tariff regulation

As stipulated in the "Evaluation of the regulation framework and necessary steps in producing electric energy from renewable resources", a normative-type bill, published by the Romanian Energy Regulatory Authority (ANRE), prices/tariffs for the energy produced from renewable resources are set through a methodology issued by ANRE and aim at stimulating the RES-E sector.

This price, called "feed-in tariff" (FIT) is meant to cover the expenses with the initial investment as well as a part of the trading costs. Yet, it should be mentioned that not all the RES-E producers can benefit from FIT, but only those who can prove they have guarantees of origin, which they can get if they prove the nature of RES-E production. As one can notice, the procedure is rather sluggish, which adds to the aspect of the different FIT quantum, according to various efficiency criteria, cost-efficiency, investors' confidence and in accordance with the principles of the deregulated electricity market. We consider the entire mechanism to be a vicious circle as the producer is supported only in case it already acts as a producer, and it needs the FIT-type financial incentive to be a producer. This barrier has also been identified in Latvia, Lithuania, Poland and Spain.

Lack of legal framework for small energy producers

In many states, the energy market is structured as a monopoly and small, independent producers cannot have access on the market. In Romania, the energy market has been functional starting with January 01, 2000 and it is structured as a competitive market. But GO 1892 (2004) stipulates encouragement of electricity production from RES by applying a mandatory quota system combined with the green certificate (GC) retailing system.

The trading value of the GC is set through competition mechanisms on a bilateral market or centralized market of GC, between minimum and a maximum limits established by ANRE for the period 2005-2012 for the equivalent of 24 EUR/GC, respectively 55 EUR/GC. On the other hand, the mechanism of mandatory quotas compels electric energy suppliers to buy every year a number of green certificates equal to the product between the value of the

mandatory quota and the electricity amount provided on yearly basis to final consumers by each supplier. If carefully analyzed, the green certificate system proves to be a barrier in the entrance and, especially, survival on the market of small producers, disadvantaged by the obligation to hold a certain number of such certificates.

This problem is also reported in Bulgaria, Cyprus, the Czech Republic, Greece, Hungary, etc., and has been solved when the Governments issued methodologies dedicated to independent producers, such as in Austria, Finland, Ireland, Luxemburg and in Great Britain.

The high number of authorities involved in the authorization procedure for investment projects

In Romania, a significant barrier in the development of the renewable resources sector is the high number of authorities involved in the approval and authorization process for investment projects. Moreover, the process is sluggish due to the lack of communication between authorization and control institutions. In Table 1, we list the time span necessary for getting all authorizations, expressed in years or year fractions, as well as the number of the required authorizations for all the EU member states.

As shown by the data in the table, Cyprus or Slovakia are negative examples in that respect, where bureaucracy is alarmingly increased, thus being a potential source of corruption. Germany, Finland or Denmark are positive examples, which implemented and are already using the so-called “one-stop shopping scheme”, a process that includes a unique stage for obtaining the necessary investment projects.

2.2. Informational and educational barriers

Lack of technical or commercial competences and information

Transparency of information regarding the renewable resources market is deficient, which leads to a drop of its performance. In addition, lack of professional competences of the personnel employed in this sector and lack of experience lower performances of this market, making it less attractive for investors. The State must develop institutional background necessary to provide full transparency of this market. All producers which activate on this market should report data concerning their activity to a supervisory body, which can subsequently centralize all the information.

Such inconveniences have also been reported in other Member States such as the Czech Republic, Estonia, Hungary, Ireland, Latvia and Poland. An example worth following is the case of Germany, which centralized all authorization processes of projects in the field at the “Federal Maritime and Hydrographic” Agency, ensuring, thus, the necessary information and gaining experience. The Directive 28/2009/EC stipulates that every state should invest all the necessary resources to train specialists in RES-E.

Community’s perception on renewable resources

Lack of detailed information on the benefits brought by the use of renewable resources generates skepticism among masses. Authorities do not promote on public channels (television, press etc.) achievements of the projects in renewable resources field, increasing thus lack of confidence in viability of such projects. On the other hand, location technologies necessary for the usage of renewable resources in the vicinity of localities meet difficulties from local authorities, they failing to understand that such investments close to communities do not pollute the environment, but they bring advantages by creating jobs and improving lives of local people.

Such perception problems are also noticed in states like Austria, Belgium, Lithuania, Holland, Slovakia, Slovenia, Sweden, etc. Hostile attitudes of local authorities have also been reported in these countries, they being influenced by the groups of traditional energy endorsers and by the fear that local tourism might be affected. A solution would be

involvement of authorities in such projects, providing more funds for them in case they endorse the RES-E sector.

Lack of trained personnel

Another problem that slows down the development of the renewable energy sector is lack of trained personnel in this field. Investors confront with the absence of specialists in operation of eco-technologies who, in their turn, could train labor force. Expenses for the personnel training so they can operate and exploit the RES energy producing machines are high, considering that specialized training centers are on the territory of other states. The risk of sending human capital for training abroad consists in the fact that the personnel can migrate for good in the state where they are sent, being lured by the higher price of the labor force. The state must step in to provide education and training of specialists in the field. If not on a large scale, at least funds from the state budget and from special funds should be allotted for construction of professional training centers, where the persons interested can learn how to operate the RES energy producing equipment.

At the moment, the number of specialists is quite small, insufficient to cover the necessary trained personnel for this field of activity. A good functioning, production and distribution of energy from renewable resources cannot be made without trained personnel. The best example is Great Britain, where a series of public institutions certify specialists in RES energy. These institutions are spread throughout the country and offer documentations for special labor conditions of employees the RES-E sector, labor safety, technical specifications for technology use, good practice guides, etc. The worst example is Greece, where there is no support in training specialized personnel in RES-E.

2.3. Economic and financial barriers

Subsidization of the traditional energy sector

Elimination of all state subsidies towards the energy sector in compliance with the obligations from the European Union Treaty is a necessary condition for the development of renewable resource sector. Cutting off these subsidies will lead to significant price hikes for the energy produced from conventional resources. Under such circumstances, tariffs of energy based on renewable resources would become comparable to the ones of energy based on classic resources, or even lower.

To compare energies, let us consider, for instance, the tariff in RON/kWh for medium voltage classic energy, for energy meters with post-consumption payment. The tariff is 0.3368 RON/kWh. If converted into euro/MWh, the resulted tariff would be 79.24 EUR/MWh, subsidized value, indeed smaller than the value of renewable energy. Provided Romania gives up on the state subsidies, then the tariff would go up by roughly one third, reaching the value of 103.02 EUR/MWh. This value is slightly higher than the maximum price the usage of renewable sources would generate. The demand for RES energy would grow considerably with such prices and investors would appreciate again investment projects in this field.

A good example for elimination of this barrier is Germany or Holland, which support with public funds the RES-E sector, and, even more, they offer bonuses to renewable energy producers, in case the produced energy is consumed efficiently. Lithuania is a negative example, as it does not offer any support whatsoever in promotion of RES-E to the detriment of conventional energy.

Initial capital investment in RES exploitation

The substantial initial investments in this field and banks' refusal to offer loans for such projects are two very important restrictive factors.

The attitude of potential creditors is justified as most tools and technologies for exploitation of renewable resources are imported, specialized personnel must be developed simultaneously alongside the project so the risk to fail is quite significant.

Pertaining to the large initial investments, the State should get actively involved in implementation of RES-E projects, in partnership with private investors, taking over at least the risk related to lack of trained personnel, the State having the obligation to invest in human resources training. This problem of high initial costs was first reported in France, and now it is reported as one of the most significant barriers in the development of the RES-E sector in Greece. Belgium, Italy and Germany have overcome this barrier and developed RES energy distribution networks.

Difficulties in evaluation of risks associated to fuel price

Since the financial input is considerable and sometimes even impossible to quantify at the beginning of the project, price setting for produced alternative fuels is difficult, as forth, setting guaranteed tariffs becomes necessary. Administratively, energy acquisition must be made at tariffs which usually cover costs. Occasionally, this tariff represents the value charged for 1 kWh by a producer, including subsidies, and exceptionally, the bonus received beside the market price. This tariff-related barrier has also been identified in states like Slovenia, Lithuania, Latvia or Poland. Germany eliminated this barrier by gaining experience in this field.

Retail tariffs of the produced energy

Renewable energy sources exploitation projects often have smaller sizes than the ones based on conventional energies. As forth, the available funding is smaller. That is why funds could be insufficient to cover the high levels of the trading costs, which include research and development of technologies and RES-E producing capacities, design of industrial construction sites where unconventional energies are produced, collecting the necessary classified data for strategic statistics, contracting costly loans or analysis of various project suggestions in the field to choose the best investment opportunity. Additional costs frequently turn up, they being connected to reports required by national authorities. All those costs are much lower in the case of conventional source energy projects and, thus, RES-E projects are much more expensive, clogging this sector's development. It would be necessary to extend the base of eligible expenditures which can receive funding from structural funds (the POS-CCE Program) and elimination of various reports required by public authorities.

This problem of trading costs is reported in other states as well, including the Czech Republic, Greece or The Netherlands. These countries do not have a public authority to take over the costs of research – development, design, implementation, and training of experts. Slovakia is a positive example in that respect, this state having a public institution which handles such costs and whose specialists certify the good trading of RES-E.

Ignoring the benefits on the exterior environment, uncountable

The impact on the environment and on the entire society is rarely compared to the impact of classic resources. The negative impact on the environment of conventional resources is often ignored when business in this field is highly profitable for investors. The use of RES-E to the detriment of conventional energy resources energies leads to a cut down in the volume of greenhouse gas emissions equivalent to the volume of such gas emissions resulted by the use of conventional energy sources (eg. 547 kg/MWh average level of CO_2 emissions in Romania) for production of the same quantity of electricity. Environment protection triggers the increase of the living standards in communities which use unconventional energy. Moreover, location of technologies for RES-E production close to

localities, in a decentralized, autonomous network, leads to creation of new jobs in the respective community and, thus, certain regions would no longer be classified as "underprivileged areas".

All those benefic aspects are often overlooked, when investment opportunities are analyzed. The easier access to an already developed distribution grid, such is the case of the conventional resource energy network, has priority ahead of the above-mentioned positive effects and authorities are skeptical about RES-E projects.

Ireland is such an example, this country lacking national public opinion awareness campaigns about the benefits of RES-E on the environment, this leading to impossibility for this field to develop and strengthens opposition against replacement of old classic energy distribution networks with renewable resource energy distribution networks.

Access to the national electric energy grid

As compared to the projects in the traditional energy field, where the distribution network is already developed, in the case of RES-E development projects, the network which allows access of final consumers to the renewable resources energy must be built by producers. The technologic parks are often located far from the beneficiary community, because weather conditions (wind speed, daily sun exposure, etc.) do not allow a closer location of the power plant and, accordingly, the costs for development of the distribution network are added to the acquisition and construction costs and this leading to expensive cumulated costs.

The State should participate with funding, logistics and labor force to offer producers and potential investors an infrastructure that would facilitate the access of target consumers to the RES energy.

The only EU member states where this barrier has not been reported are Finland and Sweden. All the other member states confront with this problem in RES-E development. In Finland, the access of RES-E distributors to the grid is facilitated at very low state-subsidized prices, and, in Sweden, their access is free-of-charge. The biggest problems from this point of view are reported in our country, in Slovakia and Spain.

Limited access to loans

The technologies used in renewable resources energy production are considered by banks as being uncertain and risky and, consequently, accessing external funding sources is limited by the very high interest rates. About 80% of the loan portfolio of commercial and investment banks in Romania consists in short and medium terms (1-3 years), while the funding of energy projects for RES electric power plants spans on periods varying between minimum 5-10 years. The interest rates are high (10-15 % per year, for EUR) as compared to the ones from EU countries (6% per year). Banks prefer to finance a company instead of the project itself, asking for solid-proof collaterals for the contracted loan, sometimes at governmental level. This barrier has also been reported in Denmark, this country admitting the need for public campaigns addressed to banks and to the financial sector in general, so they contribute to financing of RES-E projects.

Table 1

Comparative data concerning RES barriers at EU level

Country	Financial aid schemes used in 2010***	Maximum period for authorization (years)	Number of approval permits	Average price for RES-E exploitation*	Price of electricity for residential consumers **
Austria	FIT	7	7	142.3	175.2
Belgium	Q/GC	0.38	8	86.24	182.8
Bulgaria	FIT	4	7	121.535	212.2
Cyprus	FIT	0.5	1	70.62	82.3
Czech Republic	FIT	0.96	8	92	209.3
Denmark	FIT	3	2	51.76	291.8
Estonia	FIT	0.83	3	58	253.1
Finland	TI/IG	4	20	85.94	93.9
France	FIT	4.5	20	71.115	224.1
Germany	FIT	7	4	65	94.6
Hungary	FIT	3.5	25	148.79	184.8
Greece	FIT	3.83	40	166	141.4
Ireland	FIT	1.5	8	145.3	169.2
Italy	Q/GC + FIT	3	15	75.3	141.1
Lithuania	FIT	2	10	82.7	105.3
Luxemburg	FIT	3.33	2	114.22	96.9
Latvia	FIT	0.37	3	69.9	205.2
Malta	TI/IG + FIT	5	5	114	163.7
Holland	TI/IG + FIT	3	4	75.4	180.9
Poland	Q/GC + FIT	2.5	4	94	114.1
Portugal	FIT	2	6	94.5	209.5
Romania	Q/GC	3	19	148.13	125.8
Spain	FIT	0.83	6	95.38	176.0
Sweden	Q/GC	5	6	76.46	97.9
Slovenia	FIT	2.77	4	128.9	159.1
Slovakia	TI/IG + FIT	1.5	3	68.76	172.3
Great Britain	Q/GC + FIT	0.83	1	107,81	163.9

* Average exploitation price was calculated for wind energy and is expressed in EUR/MWh
** The price was calculated for a consumption interval of 1000-2500 MWh/year and is expressed in EUR/MWh
*** The following abbreviations were used for financial aid schemes:

- FIT – fixed tariffs
- Q/GC – compensatory plans, quotas
- TI/IG – tax incentives, grants for research projects

Source: EUROSTAT, "RE-SHAPING Renewable Energy Policy Country profiles 2009" report and "EREF Prices for Renewable Energies in Europe 2009" report.

The study of barriers RES energy producers confront with proves the need for an analysis of investment efficiency in this field by taking into consideration not only financial indices but also other technical, social and environmental criteria. Thus, the use of multi-criteria analysis methods as base of the decision-making process has been chosen. These analysis techniques allow consideration of several criteria or goals, sometimes opposite, to identify the feasible compromise solution from the point of view of the most important reachable criteria.

3. Research methodology and database

Solving such a multidimensional decisional problem means coherent ranking of variants, from the best to the least appropriate regarding ensemble of the *n* decision criteria. Criteria are seldom seen by decision-makers as having different *weight coefficients* noted:

$\pi_j, j=\overline{1,n}$. These coefficients will define a vector $\pi=(\pi_1,\pi_2,...,\pi_n)$, of coefficients, possibly normalized, and in that case $\sum_{j=1}^{n}\pi_j=1$.

A *decision-making problem* under certainty conditions can be defined by the following elements:
V = {V1, V_2, .., Vm} – multitude of variants or alternatives;
C = {CI, C_2, . , C_n} – multitude of decision-making criteria.

Evaluation of each variant Vi from the criterion point of view C_j, shapes into a matrix of consequences $A=[a_{ij}], i=\overline{1,m}, j=\overline{1,n}$, the multi-criteria decision-making problem being also called a cardinal multiattribute problem.
Decisional problem in this context is specific to some certitude conditions (deterministic) due to the fact that following the selection of variant V_i, considering the criterion *Cj*, it definitely gets result/consequence a_{ij}.
We can notice that any cardinal-type problem can be turned into an ordinal-type problem, as the order of the consequences values in each taken criterion gives a classification (hierarchy) of variants, for each criterion C_j. Considering the nature of the resulted data, we applied the following decisional methods: the successive weight method; TOPSIS method; ONICESCU method; linear attribution method.

Analysis criteria for RES exploitation investments were selected based on the resulted data regarding type of barriers connected to the exploitation of renewable energy and also taking as reference the conclusions of the study made by Cavallaro and Ciraolo (2005), including economical and technical, social and environmental criteria. Economical criteria are represented by financial indicators such as: net present value (NPV), investment internal rate of return (IRR), profitability index (PI), equivalent annual cost (EAC). The technical and administration criteria are: energy production capacity; technology age/novelty; installations' consistency and maintenance demands with local technical know-how; continuity of the energy offer, quick access to the energy distribution grid. Social and environmental criteria include: saving finite energy resources; climate change sustainability – CO_2 emissions which will be avoided; sustainability of other influences; social acceptability; contribution to local development; the risk associated to availability of the renewable energy resource. The criteria selected by energy producer SC ENEL SA in the multi-criteria analysis are presented in Table 2.

Table 2

Decision criteria selected in the multi-criteria analysis

No.	Criteria	Type of criterion	Step to take	Weight coefficient (%)
C1	Profitability index (PI)	Economic, quantitative	To maximize	10
C2	Internal Rate of Return (IRR)	Economic, quantitative	To maximize	10
C3	Equivalent annual energy cost (EAEC)	Economic, quantitative	To maximize	25
C4	Technology novelty	Technical, Qualitative – ordinal (scale 1-4)	To maximize	10
C5	Continuity of the energy offer	Technical, Qualitative – ordinal (scale 1-4)	To maximize	10
C6	Risk associated to availability of the renewable energy resource	Ecological, Qualitative – ordinal (scale 1-5)	To minimize	15
C7	Quick access to the energy distribution grid	Technical and Administrative, Qualitative (scale 1-5)	To maximize	20

The seven analyzed decision criteria are weighed in the final decision with weight coefficients. The sum of weight coefficients must be 1. The values of weight coefficients were set in the discussion held with representatives of electricity producer SC ENEL SA, taking into consideration the latest evolutions on the renewable energy market. Decision variants are represented by the three types of investments in RES exploitation each of them having two capacities (10 MW, respectively 25 MW). The values registered for each of the analyzed criteria in the case of the 6 decision variants (investment projects) are presented in Table 3. The estimation of the financial indices was based on a weighed average price for the trade of energy MW on the OPCOM market, respectively green certificates, as well as the number of green certificates granted for each type of RES exploitation technology according to Law no. 220 republished (MO 577/2010).

Table 3

Decision variants selected in the multi-criteria analysis

Investment project / Analysis criteria	PI	IRR (%)	EAEC	Novelty of technology	Continuity of the energy offer	Risk associated to availability of the renewable energy resource	Quick access to the energy distributio n grid
V1 – Wind power plant 10MW	0.095	13.72	98.78	4	2	3	1
V2 - Wind power plant 25MW	0.082	13.43	96.6	4	2	3	1
V3 – Biomass exploitation installation 10MW	0.82	31.63	85.98	4	4	5	3
V4 - Biomass exploitation installation 25MW	1.05	34.03	84.92	4	4	5	3
V5 – Solar power plant 10MW	-0.41	2.96	470.76	3	1	1	1
V6 - Solar power plant 25MW	-0.43	2.85	468.11	3	1	1	1

The multi-criteria analysis was made using the successive weight methods, TOPSIS, ONICESCU and linear attribution methods based on the value of selected criteria and on the weight coefficients. Table 4 presents the classification of decision variants resulted after having used the four methods.

Table 4

Classification of decision variants

Ranking	Successive weight	TOPSIS	ONICESCU	Linear attribution
1	V4	V4	V4	V3
2	V3	V3	V3	V4
3	V1	V2	V1	V1
4	V2	V1	V2	V2
5	V5	V6	V5	V5
6	V6	V5	V6	V6

We notice that variants V4 and V3 rank on the first two places (biomass exploitation installations with capacity of 25MW, respectively 10MW), without any change. They are followed by variants V1 and V2 (investments in wind turbines with capacity of 10MW, respectively 25MW) and variants V5 and V6 (investments in solar power plants with capacity of 10MW, respectively 25MW).

4. Interpretation of results and conclusions

The results of this analysis largely depend on the selected criteria as well as on the weight coefficients given to each criterion. Financial performance indicators are highly important for a RES energy producer, plus technical criteria such as continuity of the energy offer and administration criteria, concerning quick access to the power grid. The level of the weight coefficients taken into consideration can change the projects' hierarchy, indicating thus the most feasible projects based on the overall criteria that must be met. Thus, as result of the multi-criteria analysis, investment projects for exploitation of biomass proved to be the first option a RES energy producer should take. Lower costs, increased performance and the fact that the investment can be made in areas with easier access to the power grid, technically speaking, may represent strong points. Despite that, few such projects have been developed, they being conditioned by the existence of the biomass renewable resource, which, in its turn, is conditioned by the evolution of economy and agriculture. Consequently, investments in wind power plants are a viable option for the RES energy producer. Their financial feasibility is regulated by Law 220/2008, republished, by the number of green certificates given to producers, but the difficult access to the electricity transportation and distribution grid might block their start.

Acknowledgements

This research was supported by a grant from UEFISCSU under the *National Program PN II*, exploratory *research project* "Integrated System of Multi-Criteria Analysis of Investments Efficiency in the Field of Renewable Energy Exploitation to Support the Sustainable Development", CNCSIS code: ID_1807, contract no. 799/19.01.2009

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PROJECT MANAGEMENT IN THE CORPORATE CONTEXT-PROJECT APPRAISAL USING DISCOUNTED CASH FLOW

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Abstract. *In the actual crisis context, investment project appraisals and capital budgeting, which involve assessing the financial feasibility of a project, should use Discounted Cash Flow (DCF) analysis. This paper tries to present good practice principles and rules in project appraisal and financial managers' role in this field of interest. Professional accountants in business become responsible for preparing and reporting on financial. They should (a) apply high standards of DCF and Net Present Value (NPV) analysis, (b) establish safeguards to compensate for risks to the integrity of information flows, and (c) provide objectivity where conflicts of interest could influence a decision.*

Keywords: professional accountants; discounted cash flow; net present value; project management; financial institute.

JEL Code: G11.
REL Codes: 11D, 11E.

1. Introduction and research methodology

In the interest of stronger economies and economic growth, decisions on resource allocation in organizations require a systematic, analytical, and thorough approach, as well as sound judgment. Investment (project) appraisals and capital budgeting, which involve assessing the financial feasibility of a project, should use Discounted Cash Flow (DCF) analysis as a supporting technique to (a) compare costs and benefits in different time periods, and (b) calculate net present value (NPV). NPV utilizes DCF to frame decisions, to focus on those that create the most value.

This paper tries to present good practice principles and rules in project appraisal and financial managers' role in this field of interest. Financial managers and professional accountants in business become more and more responsible for preparing and reporting on financial based on fair value, and by default, valuation on discounted basis. To this end, they should (a) apply high standards of Discounted Cash Flow (DCF) and Net Present Value (NPV) analysis, (b) establish safeguards to compensate for risks to the integrity of information flows, and (c) provide objectivity where conflicts of interest could influence a decision. In this context, financial managers and professional accountants in business both challenge and contribute to decision-making. In this approach, it's important to analyze project management in corporate context. Project selection and appraisal make investment decision which is the first step in project management as organizational methodology.

The research methodology used is a critical and comparative analysis of the International Good Practice Guidance (IGPG) issued by International Federation of Accountants (IFAC) and the practice and experience of national practitioners in this field. The International Good Practice Guidance (IGPG) covers DCF analysis, and supports professional accountants in business which evaluates investments to support decision making. The research result is unless the advocacy for appliance in Romanian companies the fundamental principles and providing guidance on how to use DCF analysis. This IGPG establishes a benchmark that can help professional accountants to deal with the complexities of practice. Investments include major capital spending and strategic investments such as

product development, and acquisitions and divestitures that shape the future of an organization.

On the other hand, we make a literature review about organizational project management to find the guidelines of project management in a corporate context.

2. The role of the professional accountant in business

DCF analysis and estimating the NPV of cash flows incorporate fundamental principles of finance that support disciplined financial management in organizations. Professional accountants in business have a role in promoting and explaining the importance of these principles in their organizations, particularly where the connections between the application of financial principles and related financial theory are not easily understood or accepted. A key challenge in using DCF arises from the confusion that often occurs in understanding its theoretical basis and practical application. Another challenge for professional accountants and financial managers is to understand of the project management in the corporate context. More important is to understand the project management methodology which begins with project appraisal before project selection and approval. The importance of the role of professional accountants in business in supporting communication of information within organizations and to its outside stakeholders is highlighted in the IFAC Code of Ethics for Professional Accountants. Paragraph 300.2 states that investors, creditors, employers, and other sectors of the business community, as well as governments and the public at large, may all rely on the work of professional accountants in business. Professional accountants in business may be solely or jointly responsible for preparing and reporting on financial and other information on which both their employing organizations and third parties may rely. To this end, professional accountants in business should (a) apply high standards of DCF and NPV analysis, (b) establish safeguards to compensate for risks to the integrity of information flows, and (c) provide objectivity where conflicts of interest could influence a decision. In this context, professional accountants in business both challenge and contribute to decision-making. Companies with good records in value creation tend to have better access to capital and a more motivated and productive workforce. This good practice guidance should supports and encourages professional accountants in business to promote (a) disciplined financial management in organizations, and (b) generation of long-term value. This allows organizations to focus on decisions that maximize expected value, rather than their short-term impact on reported earnings. Delivering public and not-for-profit services requires a focus on (a) ensuring that public funds are spent in the most efficient and effective way, and (b) activities that provide the desired benefits to society.

It is necessary to encourage professional accountants in business to promote the use of DCF analysis and NPV to evaluate investments. Adoption and prioritization of these techniques will vary depending on jurisdiction, size of organization and organization type. For example, organizations with explicit value creating strategies may emphasize DCF and NPV, and downplay the role of other criteria such as payback and earning per share (EPS) growth. Conversely, a restructuring organization experiencing poor performance may emphasize short-term financial performance and criteria such as EPS growth. However, research shows that a significant number of organizations do not prioritize DCF and internal rate of return (IRR) when perhaps they should, especially in assessing strategic investment decisions and taking a long-term view. In smaller organizations, use of DCF and IRR is particularly variable, as many rely on relatively simple approaches such as payback criteria and informal rules of thumb.

Professional accountants in business can promote the use of both DCF and NPV in investment appraisal and advise on the appropriateness of other techniques for specific contexts. They can also directly (a) conduct DCF analysis, and (b) ensure the quality of information flows, to support analysis and appraisal of the investment.

Professional accountants in business who work in a finance and accounting function of an organization may participate in interdisciplinary teams, whether at a marketing, research and development, or other functional interface, that assess the effectiveness of investments. For example, marketing expenditures with longer-term effects, such as product launch advertising and promotions, could be evaluated using DCF to analyze expenditures and earnings. Some organizations with significant brand investments have used professional accountants in business to develop DCF-based and other tools to provide insights into the effectiveness of these investments. A typical role in this context is helping to (a) frame the decisions and the purpose of the analysis, and (b) select the most appropriate approach and tools, given the context of the decision and the end user's information requirements. In investment appraisal and capital budgeting, professional accountants in business could participate in (a) recognizing the investment opportunity, (b) determining the alternatives, (c) ensuring that information is used in a way that leads to the selection of the best alternative, and (d) subsequent checking to establish whether anticipated benefits have been realized. Many organizations require consideration of at least three alternative investment options in making decisions. In addition to using DCF analysis to help an organization improve decision-making, professional accountants in business could encourage a wider assessment of the strategic impact and economic rationale of a potential investment. Organizations should place investment appraisal in a wider strategic context. For example, determining whether acquisition or internal growth is most effective in reaching an organization's strategic objectives requires an understanding of the business environment and an organization's specific situation. A wider strategic analysis might include an assessment of (a) market economics, (b) economic profitability across markets, products, and customers, (c) determinants of sustainable profitable growth and competitive position, and (d) alternative options. In this context, where appropriate, professional accountants in business could encourage consideration of a range of stakeholders in assessing potential investments. That range could include employees, managers, communities, customers, suppliers, the industry, and the general public. Professional accountants in business could advise on the alignment of investment appraisal with assessments of subsequent managerial performance. For example, management incentives based on accounting profit could encourage actions that do not support long term value generation to shareholders. For example, a potentially good (based on NPV criteria) project, supported by a wider assessment of its strategic importance, could result in poor accounting returns in its early years.

3. The scope and the key principles of project appraisal using DCF

The scope of widely accepted features of good practice is investment (project) appraisal and refers to evaluations of decisions made by organizations on allocating resources to investments of a significant size. Typical capital spending and investment decisions include:

• Make or buy decisions, and outsourcing certain organizational functions,

• Acquisition and disposal of subsidiary organizations,

• Entry into new markets,

• The purchase (or sale) of plant and equipment,

• Developing new products or services (or discontinuing them), or decisions on related research and development programs,

• The acquisition (or disposal) of new premises or property by purchase, lease, or rental,

• Marketing programs to enhance brand recognition and to promote products or services,

• Restructuring of supply chain,

• Replacing existing assets.

The key principles underlying widely accepted good practice are:

A. When appraising multi-period investments, where expected benefits and costs and related cash inflows and outflows arise over time, *the time value of money* should be taken into account.

B. The time value of money should be represented by *the opportunity cost of capital.*

C. *The discount rate* used to calculate the NPV in the DCF analysis should properly *reflect the systematic risk of cash flows attributable to the project* being appraised, and *not the systematic risk of the organization* undertaking the project.

D. A good decision relies on an *understanding of the business* and an *appropriate DCF methodology*. DCF analysis should be considered and interpreted in relation to an organization's strategy, and its economic and competitive position.

E. Cash flows should be estimated *incrementally*, so that a DCF analysis should only consider expected cash flows that could change if the proposed investment is implemented. *The value of an investment depends on all the additional and relevant cash inflows and outflows* that follow from accepting an investment.

F. At any decision-making point, past events and expenditures should be considered *irreversible outflows* (and not incremental costs) that should be ignored, even if they had been included in an earlier cash flow analysis.

G. All assumptions used in undertaking DCF analysis, and in evaluating proposed investment projects, should be supported by *reasoned judgment*, particularly where factors are difficult to predict and estimate. Using techniques such as sensitivity analysis to identify key variables and risks helps to reflect worst, most likely, and best case scenarios, and therefore can support a reasoned judgment.

H. A post-completion review or audit of an investment decision should include *an assessment of the decision-making process, and the results, benefits, and outcomes of the decision.*

4. Definitions of terms used in project appraisal using DCF

• *Assessment period:* the phase during which information to enable the investment project decision is compiled and the decision is made.

• *Beta:* the factor used in the capital asset pricing model to reflect the risk associated with a particular equity. Beta is a proxy for the market risk that shareholders bear.

• *Capital Asset Pricing Model (CAPM):* a tool to estimate the cost of equity capital using several empirical inputs. They include the following: the risk-free rate represents a return an investor can achieve on the least risky asset in a market; equity beta captures the systematic risk of an investment; and an equity market risk premium is the premium that a perfectly diversified equity investor expects to obtain over the risk-free rate. This model predicts that the expected risk premium for an individual stock will be proportional to its beta. CAPM is represented by the formula: $Ri = Rf + \beta i\ (Rm - Rf)$, where:

Ri represents expected rate of return on asset; Rf is rate of return on a risk-free asset; Rm represents expected rate of return on a market portfolio; βi is a beta coefficient of an asset defined as Cov (Ri, Rm)/(Varm).

• *Cost benefit analysis:* the comparison between the costs of the resources used (plus any other costs imposed by an activity, such as pollution) and the value of the financial and non-financial benefits.

• *DCF analysis:* a financial modeling tool that uses projected cash flows generated by an investment. DCF analysis calculates value based on all expected cash flows related to (a)

the investment or project, (b) the life of the investment, and (c) the opportunity cost of investing in a project of similar risk profile (represented by the discount rate).

• *Discount rate:* a rate that represents the opportunity cost of capital. A discount rate is a desired return that could be represented by (a) the specific return an investor expects for an alternative investment, (b) the interest rate on debt, or (c) another interest rate. The discount rate reflects the time value of money, and uncertainty and risk.

• *Internal rate of return:* the average annual percentage return expected for a project, where the sum of the discounted cash inflows over its life is equal to the sum of the discounted cash outflows. The IRR therefore represents the discount rate that results in a zero NPV of cash flows.

• *Nominal cash flows:* the cash flow that an organization generates or is expected to generate during a given period, without adjustment for factors such as inflation or the time value of money i.e. cash flows expressed in real terms represent the purchasing value as of the time of occurrence, nominal cash flows are expressed in currency of purchasing value as of the day of the investment evaluation.

• *NPV:* a single value that represents the difference between the sum of the expected discounted cash inflows and outflows attributable to a capital investment or other project, using a discount rate that properly reflects the relevant risks of those cash flows.

• *Opportunity cost:* the value of the benefit sacrificed when one course of action is chosen over an alternative. The opportunity cost is represented by the foregone potential benefit from the best rejected course of action that has a similar relevant risk profile.

• *Projection:* an estimate of value in a future time period.

• *Real options:* represent the right, but not the obligation, to take different courses of action with respect to real assets (rather than financial instruments). Where DCF is based on a deterministic cash flow projection, with little allowance for management flexibility, real options introduce flexibility to defer, abandon, scale back, or expand investments. They should be considered as part of an evolutionary process to improve the valuation of investments and the allocation of capital.

• *Sunk or irrecoverable cost:* cost that has been irreversibly incurred or committed and cannot be considered relevant to a decision, such as pre-project market research and development costs.

• *Systematic risk:* the risks associated with holding a market portfolio of stocks, for example, interest rate increases, rate of inflation, and oil price changes. Systematic risk represents the variability in a security or stock's total returns that are directly associated with overall movements in the general market or economy. An investor can construct a diversified portfolio to eliminate the specific risks associated with an individual stock.

Therefore, a well-diversified investor investing in additional stocks is exposed only to those risks that contribute to the overall riskiness of the portfolio.

• *Terminal value:* the residual value of a business or project at the end of the discrete period for which a detailed cash flow projection is prepared.

• *Value in use:* the present value of the future cash flows expected to be derived from an asset or cash-generating unit.

• *Weighted average cost of capital* (WACC): the opportunity cost to all capital providers (debt and equity) of investing in an alternative project of similar relevant risk profile, weighted by the project's relative contribution to a company's total capital, and calculated using market values of debt and equity.

• *Working (net) capital:* current assets (cash, accounts receivable, and inventory) less current liabilities. Cash is only included as a working capital item to the extent it is required to operate the business.

5. Project appraisal and project of management in corporate context

In project management the key for succeed projects is doing all as a process. This process begins by project appraisal and it is managed by a methodology. But why is methodology necessary? By developing and requiring conformance to a prescribed project management methodology, a company is assured that all its projects will be conducted and managed in a consistent manner (Nicolas, Steyn, 2008). The methodology provides a common way to do things and a common terminology including project appraisal using DCF and its specific terminology. The schemes below reflect by horizontal line project life cycle phases versus project management methodology.

Phases of project life cycle						
1. Conception	2. Definition		3. Execution	4. Termination		5. Post-project (Implementation)
Phases and requirements of project management methodology						
1. Initiation/ Feasibility	2.Preliminary Plan	3.Detalied Plan	4.Detalied Design	5.Develop/Built Test	6. Implement Closeout	7. Maintenance
Tasks	Tasks	Tasks	Tasks	Tasks	Tasks	Tasks
…….	…….	…….	…….	…….	…….	-
Signoffs	Signoffs	Signoffs	Signoffs	Signoffs	Signoffs	-
…….	…….	…….	…….	…….	…….	-

Source: Scheme adapting from John M. Nicolas and Herman Steyn, *Project Management for Business, Engeneering, and Technology*, Elsevier, 2008, pp. 580-582.

In this approach we can reflect by two vertical lines *tasks versus deliverables* project management in a corporate context:

Project management tasks	Project management deliverables
Project initiation/proposal/feasibility/ appraisal	Procurement/contract management
Stakeholder identification	Human resources recruiting, training, layoffs
Project selection	Project tracking /review
Proposal development	Data entry
Project planning	Reporting to management
Requirements/specifications	Project auditing
Work definition	Quality control/assurance
Resource needs	Process control
Time and cost estimating	Change control
Scheduling	Project closeout
Budgeting/accounting	Post-project review
Risk analysis	Post implementation review
	Knowledge management

The question raised from above is the site and role if project appraisal in project management methodology and what is the role of project manager and financial manager or accountants? Obvious, is an important one because project appraisal is indispensable for project selection and approval. Professional accountants in business who work in a finance and accounting function of a company may participate in interdisciplinary teams, whether at a project management, research and development, or other functional interface, that assess the effectiveness of investments.

Conclusion

This paper may become useful for professional accountants in businesses who work in finance and accounting function or position, but also for professional accounting and financial institutes. By their annual program of professional education and training, the professional institutes should provide good practice guidance.

This paper may become an argument for the proposal to establish a financial institute which should make a large dissemination of finance modeling and technical financial analysis. A financial institute in Romania is a new chance for professional accountants in businesses who work in finance and accounting to have permanent access at such instruments to manage financial or non-financial assets. Hence, we support this idea and proposal for give professional training in finance for alumni in finance or any professional accountant, financial auditors, internal auditors etc.

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IFAC Business issue – Project Appraisal Using Discounted Cash Flow

IFAC Code of Ethics for Professional Accountants

THE ROMANIAN COMPANIES' COMPETITIVE ADAPTIVE PROCESS TO COPE WITH THE FINANCIAL AND ECONOMIC CRISIS – THE MANAGERIAL PERSPECTIVE

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Abstract. *The present paper tries to capture the assessment of the Romanian managers on the most effective policies and measures at corporate level to cope with the challenges they are facing under current economic conditions. The results of two surveys designed by the author and administered to a group of middle and top managers in different moments of crisis evolution in Romania are presented. The results are analyzed in order to identify the main managerial decisions and changes at the level of companies with activity in Romania in coping with the crisis effects from emergence to the recovery process. The results reflect the predominance of the measures with financial effects mainly on cash position.*

Keywords: financial crisis; real economy crisis; economic recovery; business decisions.

JEL Codes: G01, L21, M21.

Introduction

The performance of Romanian economy in 2007 at the beginning of the crisis and in 2008 produced at the time the hope that Romania will be less affected or that the side effects will be quickly recovered. After a brutal decrease in GDP in 2009, in 2010 the crisis is still present in the economy, but signs of a lessened intensity are starting to emerge.

The author of this paper consider that surveying and analyzing the middle and top manager's effective practices and the managerial decisions in different stages of crisis evolution can provide important information on adaptive process at corporate level to the challenges raised by the crisis effects and insights about the pattern of future recovery process. The survey as investigation instrument could be considered a mirror on the managers' experience in dealing with crisis and on their efforts to find the most effective path to recovery. It is also a coagulated image of the perception of the management class on the support the private sector received from authorities in their fight with crisis effects.

The purpose of the study

In 2008, Romania was considered to be a Central European "tiger", based on its GDP growth rate (Dumitrescu, Firica, 2009).

Compared with other countries from the EEC, Romania seemed the one able to keep high the growth rate in GDP, despite the crisis evolution in the rest of the world.

The realities of the adjustment process in 2009 proved to be a brutal landing, with high pressure on the skills, knowledge and managerial abilities of the "managers" deciding in the public and business sectors of the country.

In the Institute for Business Administration in Bucharest surveying EMBA students' opinions and experience about the managerial practices in their companies is a method frequently used to detect best practices or trends specific to the Romanian environment. The debates around the results obtained by the surveys offer a good opportunity for each participant to position him/herself versus the main trend, to identify the divergent

management lines and to analyze in an objective way the different policies at corporate level, in relation with the general business context.

The present paper aims:

- To survey and analyze the perception and experience of Romanian managers with respect to the most effective or ineffective measures in coping with crisis at company level, in two moments of crisis evolution in Romania;
- To ascertain if there were changes in managerial practices at corporate level as the crisis evolved in 2009 and beginning 2010.

It is not in the intention of the author to analyze the effectiveness or ineffectiveness of the measures taken by the Romanian managers under the current economic conditions. Those aspects were already presented in other published scientific papers (Dumitrescu, 2009).

The working tool

The two surveys were administered to the managers of the Executive MBA Program of the Institute of Business Administration in Bucharest from both year I and II, in April 2009 and to the students of second year in January 2010.

The firs questionnaire administered contained in fact seven questions regarding the respondent's assessment of the most relevant managerial decisions, actions or behaviors as answers to the deep changes in the economic environment.

The questionnaire is anonymous, in English, of open-ended type, requiring three possible answers for each question, without a ranking. It also allowed the respondents to mention the industry of their business. Only one out of the seven questions of that survey is relevant to the current study. The question analyzed in the survey is:

Which were the three most effective anti-crisis measures at the level of your company?

The second survey has been administered in January 2010 as an individual anonymous task with the next format: Please *prepare individually* in written form in maximum five lines the three most effective measures your company implemented in coping with the crisis downturn.

The respondents

The questionnaire and the individual task were presented as a volunteer task with the same objectives as this paper.

The industries represented by the respondents in the both surveys are similar and shown in Annex 1.

The answer rate was for the April 2009 questionnaire 43% of the students present in the days of administration and we received 51 valid questionnaires. For the individual second survey from January 2010 the response rate was 47% and we received 28 valid questionnaires. It is important to mention that from the 28 respondents measures identified were isolated 119 measures – an average of 4.25 measures per respondent. This situation is the result of the fact that some suggested measures were in fact a combination of two or three measures; ex: "Cash flow- the new master plan" (special incentives for the clients that pay in the short term, renegotiations' with the suppliers longer terms of payment, using the compensation for product or services –barter..).

It is not possible to ascertain whether the sample is representative for the population of Romanian middle and top managers. However, we may notice two characteristics of the samples:

- The samples cover a wide range of industries that the respondents come from, and the main contributors in the structure of the GDP are well represented by our sample;
- The Executive MBA students were not selected in view of the survey, and the task was presented as optional.

Based on these elements, we consider that the results of our study could offer indications about the most commonly used measures in coping with crisis at company level, their change in time – as the crisis evolved – and the identification of the functional areas were the measures were seen as more effective.

Results and analysis

The open-ended scale the surveys were conceived on elicits a wide variety of responses, because the respondents do not feel constrained to fit their perceptions into narrow, artificially created scales. However, it may be very difficult to summarize, combine or obtain associations among this type of results or to turn the findings in meaningful information categories. To reduce the variability of the subject matter we tried to structure the responses to elicit the same wide-ranging responses, but in more focused manner: the questions asked only "the three most important measures", inviting the respondent to make himself a first choice. Even so, it was difficult to determine the reliability of the analytic categories and we needed to introduce a new category "Others" to capture the categories that had a very low frequency.

The aggregation of results and the definition of the analytic categories were done starting from key words and taxonomy analysis of the answers. Three dimensions were on focus: the frequency of the answers vs. total number of answers, their relevance by functional area and the comparison across the two moments when the surveys were administered. The main analytical categories of answers for each question in the survey are analyzed below and elements not captured in a trend are presented under "other "category, at the end of the paper (in Annexes part).

Question in April 2009 survey: Which were the three most effective anti-crisis measures at the level of your company?

Five meaningful categories were detected in the answers (Figure 1):

a. Management of credit portfolio;
b. Cost control;
c. Close relations with clients;
d. Changes in processes and products;
e. Mergers and acquisitions.

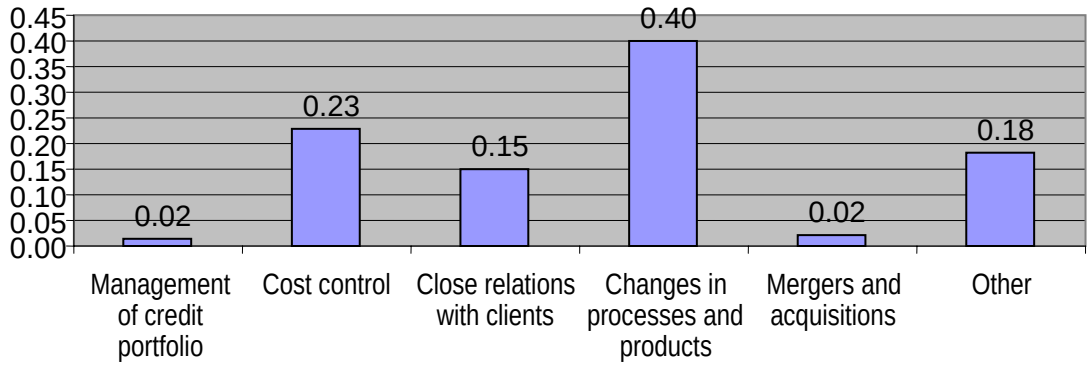


Figure 1. *Q: Most effective measures coping with the crisis at company's level*

The most effective measures in coping with crisis in April 2009 have been identified as being the change in the processes and products 40%, and the cost control, 23%. It is to be mentioned that those measures are structural measures with potential positive effect in the recovery phase with potential implications for a new competitive positioning of the Romanian economy. The category "Other" measures is presented in detail in Annex 2, showing the

diversity of approaches, tailored to the specific features of the industry. The aggregate structure of responses reveals an extended preoccupation for reshaping the internal processes and products to the new conditions. The downsizing dynamics is obvious. The reduced number of answers suggesting growth (as mergers), or the preoccupation to increase the quality could be seen as an adaptive, defensive trend.

Question in January 2010 survey: **The three most effective measures your company implemented in coping with the crisis downturn.**

The range of the identified measures is larger and the answers are more focalized. The most effective measures identified were:

a. Cost cutting;
b. Redesign of companies' operation process or in its organizational structure;
c. Relations with clients;
d. Changes in HR management;
e. Change in products' quality, mix and structure;
f. Relation with supplier;
g. Cash management;
h. Control of costs' limit.

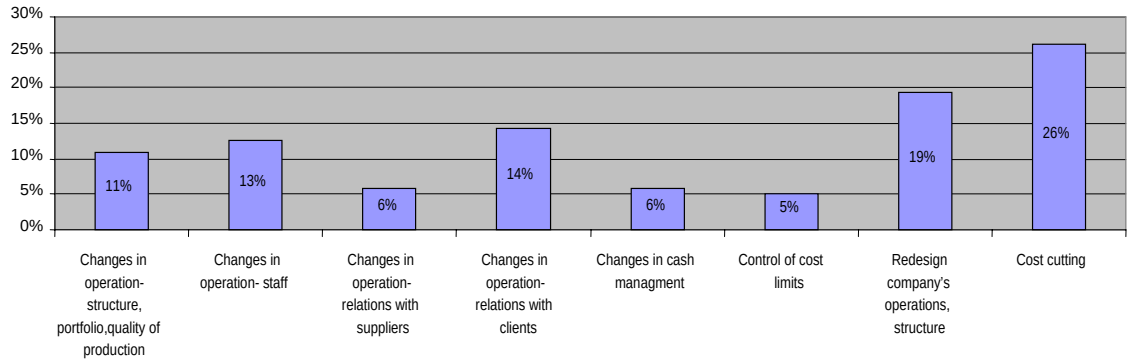


Figure 2. *Effective measures coping with crisis at corporate level*

It is to be mentioned that the answers indicated that the managers are more aware about the different policies to be used in cost management (cost cutting versus control of their limits) as well as the fact that the changes in processes and products should be addressed by a dedicated- detailed set of policies.

The two group of actions under the policy of cost management: Cost cutting and control were mentioned as effective measures by 31 % of respondents versus 69% that mentioned as effective ones the changes in operation in very explicit way: products, staff, relations with suppliers and clients, cash management, reengineering, restructuring and reorganization of the company as entity. It is more than "a fat" cut: it is a period of time for critically review of the policies built mainly in the years of growth.

Cash management has been identified as explicit policy; It is important to mention that in the cluster identifying process was more easily to be done: all the measures identified by the respondents classified were assigned to a cluster – as in the Figure 2 – the category Other having 0% elements. The group of consistent measures – that we identified also as policies- having more that 10% are redesign the operations and processes in companies- 19%, Changes in the policies of companies in relations with clients – 14% and staff – 13% and Changes at product level (quality, structure of product mix, new products) – 11%.

Cost cutting and control of cost limits

We considered here all the measures concerning the reductions/cuts in the existing costs of operation. The cost management policy reflect the fact that the restructuring process

went in another phase: the cost reduction mentioned in general terms represents only 42% of respondents; 58% of managers are refereeing to cost cutting in very specific terms, indicating the component of costs considered under downsizing process of the company. It is important to mention the fact that ¼ of those mentioning as effective measure cost cutting have identified the reduction in administrative or not related to core business costs as effective measure. The reductions affecting the human resource represent 16% of the answers (10% layoffs and only 6% salary decrease.)

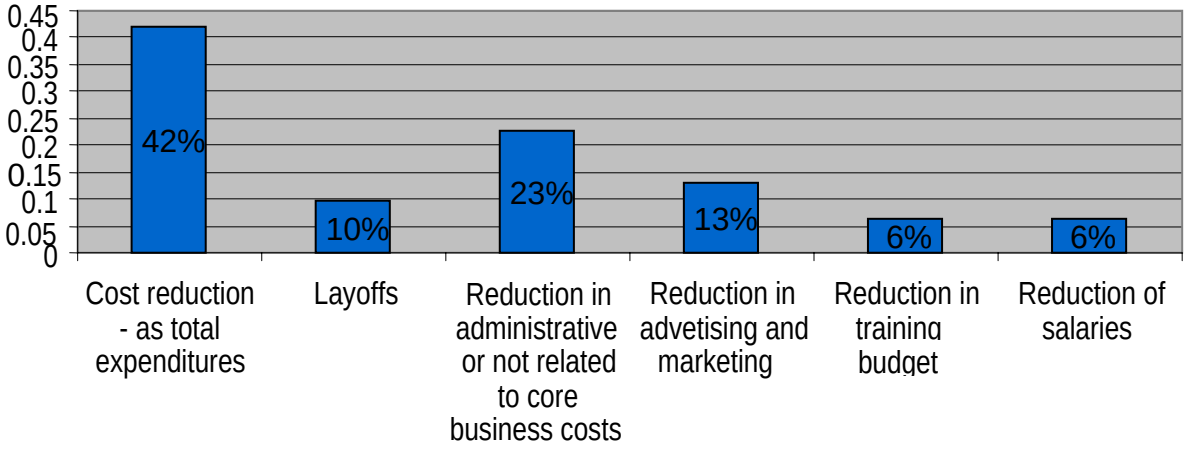
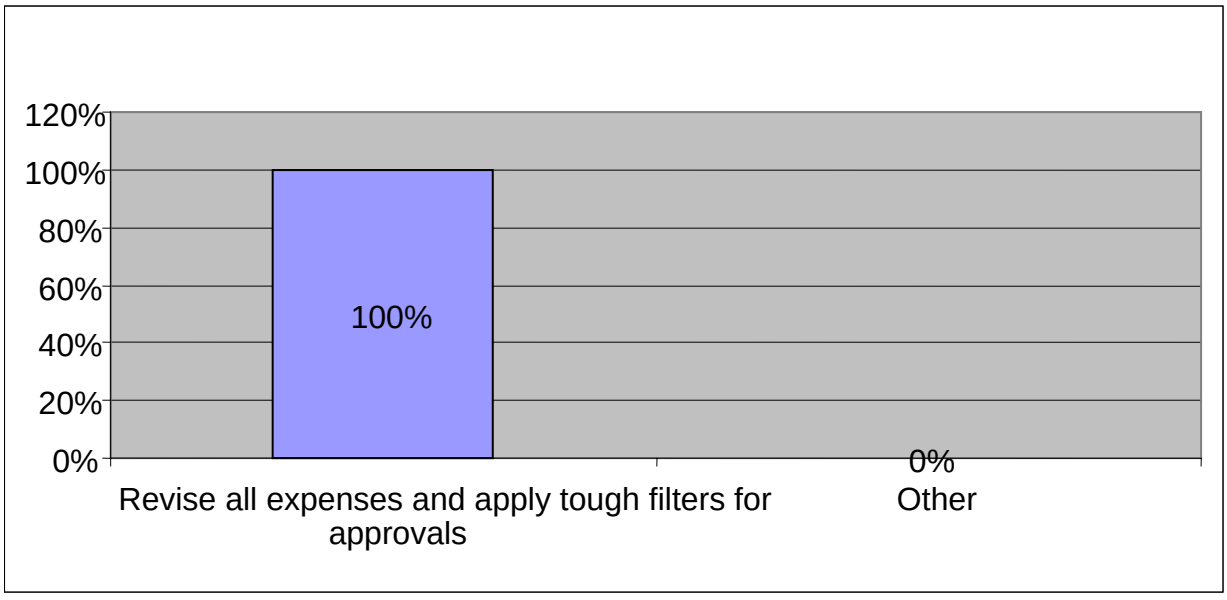


Figure 3. *Cost cutting policies*

The control of cost limits reflect the proactive measures considered by the companies to stay in the limits of existing costs and budgets. The policy reflects only 5% out of the total measures identified but 100% of those respondents expressed in the same way the measure : revision of the expenses and tough filters used for approval. The category Other represents 0% of the answers.



Redesign company's strategy, operations, structure

Second cluster as importance – 19 %, reflects the active adaptive process of companies to new context beyond downsizing. The pressure to increase market in crisis context is captured by the measures indicating orientation towards other new internal and external markets – 43%: 26% respondent indicated joint ventures with international leading companies

as effort to gain a new position in the global markets and 17% extension in new markets. In the restructuring process the companies undertook deep changes beyond the passive downsizing or cost cutting measures: 17% of respondents of this cluster indicated reshaping the entire organization as effective measure. The category "Other" 17% reflected in Annex 3 regroup the answers of low frequency but congruent to the cluster.

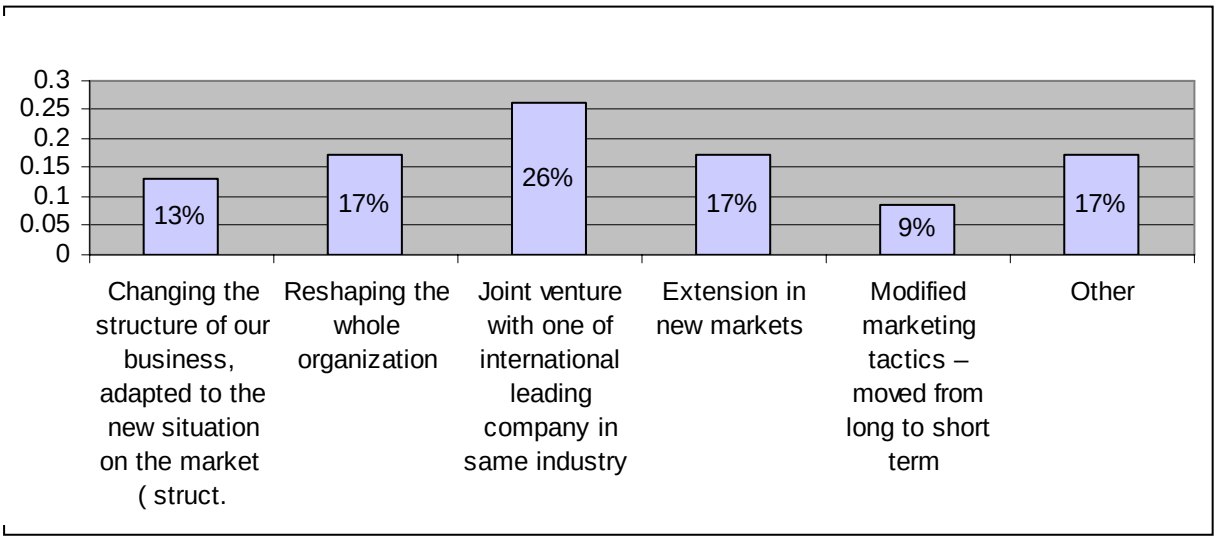


Figure 5. *redesign in company's strategy, organization, structure*

Changes in operation- relations with clients

That policy represents 14% of the identified measures indicated by the managers**.** In detail the renegotiation of credit terms (delays of payments, discounts, credit limits) represent the main effective measure. Mentioned actions dedicated to the increase number in clients reflect a proactive approach.

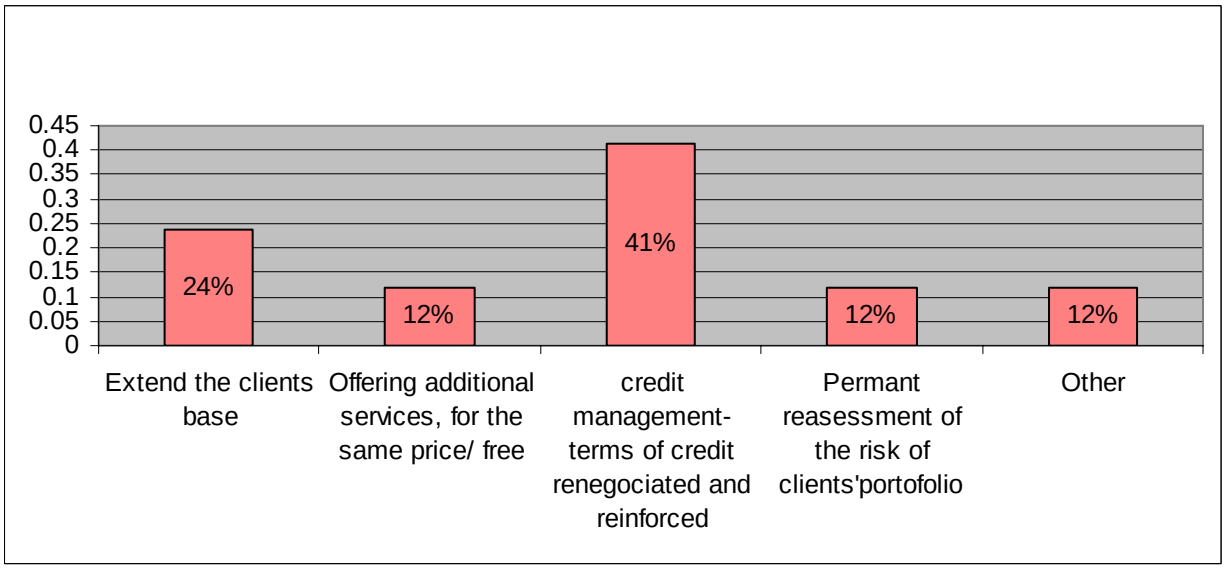


Figure 6. *Changes in operation-relations with clients*

Changes in operation- staff

We identified Changes in operation- staff as a strong cluster. The category "Other" reflects only 7% of the measures indicated by the managers versus 93% very specific measures mentioned by the respondents**.**

The main action indicated by the managers as effective in coping with the crisis was relocation of staff from administrative to more productive and the training inside company-

20%. It is to be noticed some measures not mentioned in such nuanced terms in the April survey such as: restructuration based on performance, replacement of expats with local managers, reduction in managerial positions and reallocation of workload to remaining managers.

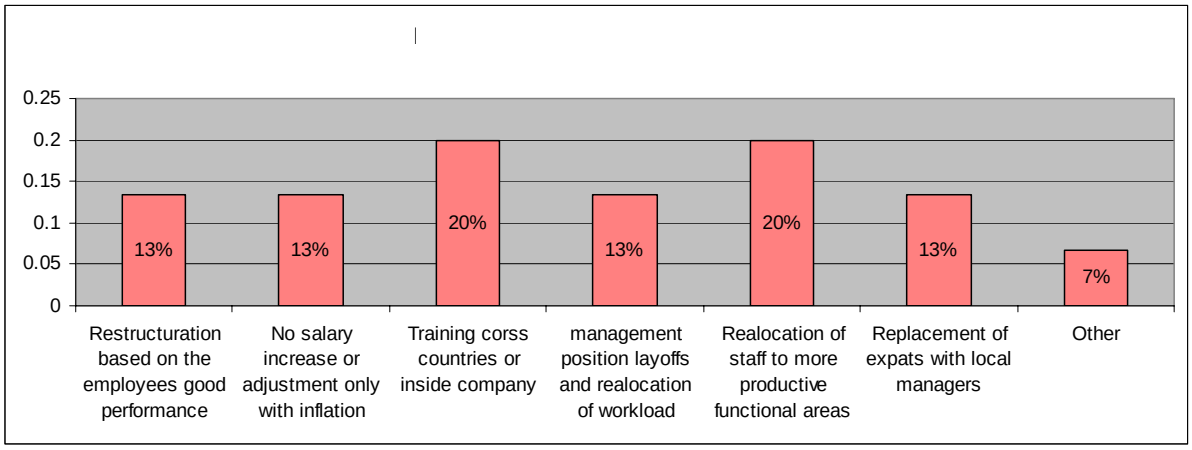


Figure 7. *Changes in operation-staff*

Changes in operation- structure, portfolio, quality of production

That measure was easy to be clustered because 62% of respondents mentioned explicitly the change in the existing products in order to be more adapted to new conditions and the launch of new products as effective measures. The category Other represents an important percentage.

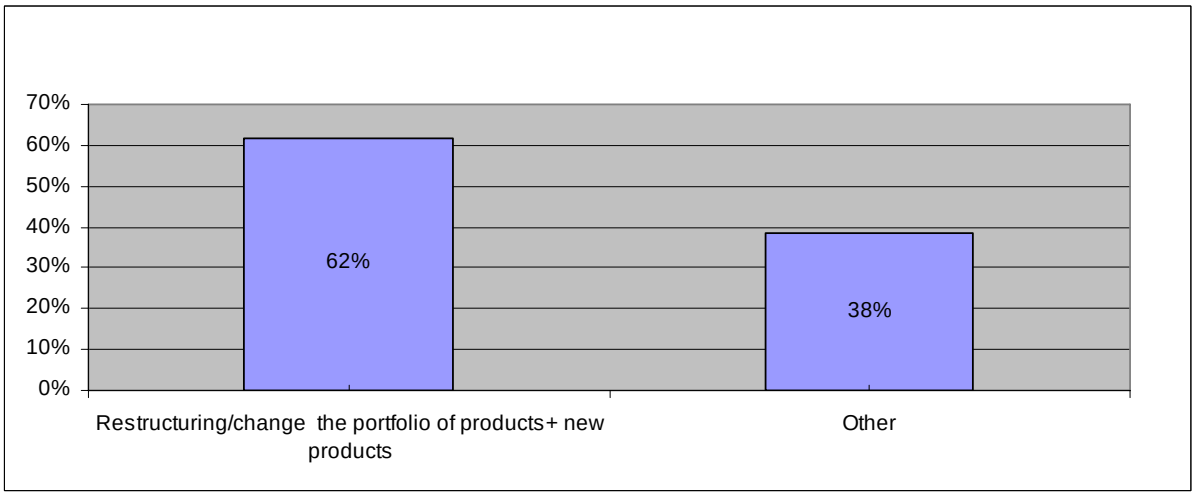


Figure 8. *Changes in operation-structure, portfolio, quality of products*

Changes in operation-relations with suppliers

100% of respondents in the survey mentioned that the renegotiation of the contracts with suppliers was used to effectively cope with the crisis effects.

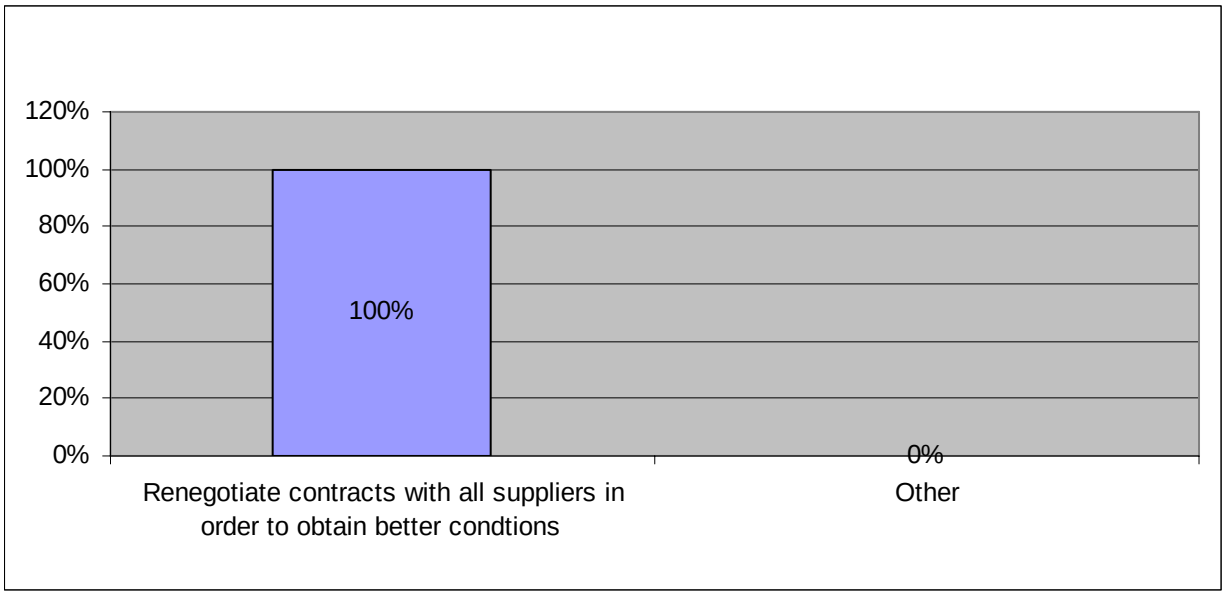


Figure 9. *Changes in operation-relation with suppliers*

Changes in cash management

It is important to mention that the policy "Changes" in cash management was not explicitly addressed in the survey from April 2009. The elements clustered under the category "Other" reflects the high percentage of diversity in explicit measures applied in order to better manage the cash.

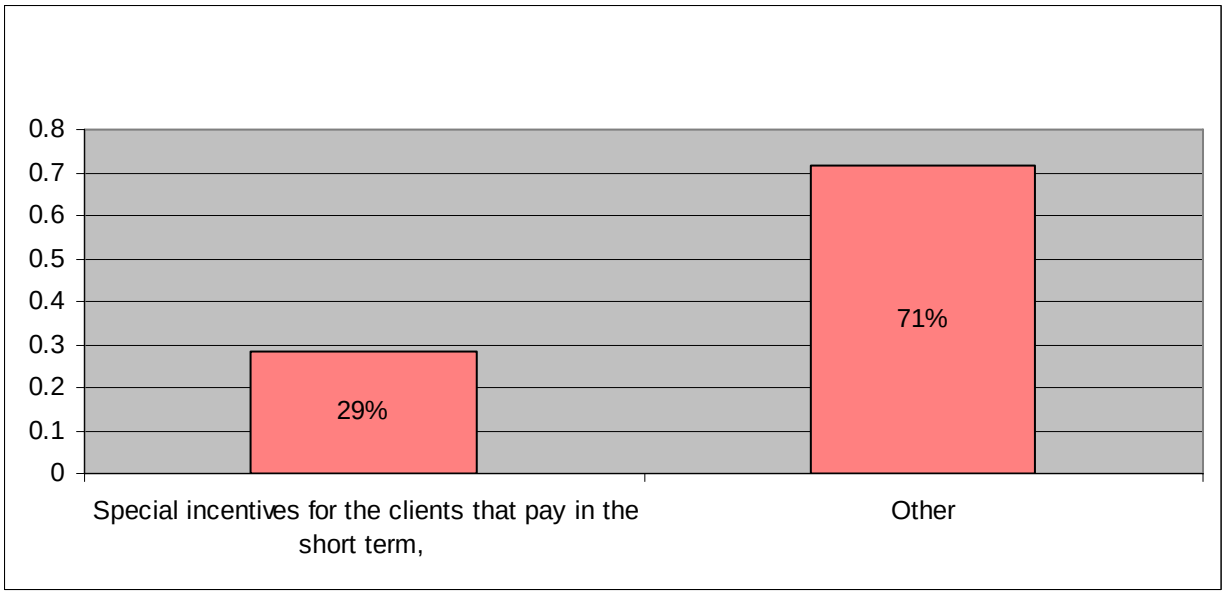


Figure 10. *Changes for cash management*

Conclusions

The surveyed managers identified a set of effective measures in coping with crisis at corporate level. The groups of consistent measures we clustered in policies applied at corporate level and considered across companies. The two administered surveys in April 2009 and January 2010 allow us to see the changes in the policies and measures at corporate level during the evolution of economic crisis in Romania. The result of the April survey reviles the fact that the set of effective measures mentioned by the surveyed managers was in fact a rapid reaction to the brutal deterioration of economic context. The measures indicated by the managers as effective in January are much more explicit, are clear oriented and have a clear

target. For example at company level the most effective measures reveal a preoccupation for restructuring the internal processes and products. The measures identified by the managers are more oriented toward processes, positive financial impact and a better positioning in the market place. They have only as indirect effect the downsizing. They are implemented in order to give a competitive adaptive response to the new phase of economic crisis in Romania.

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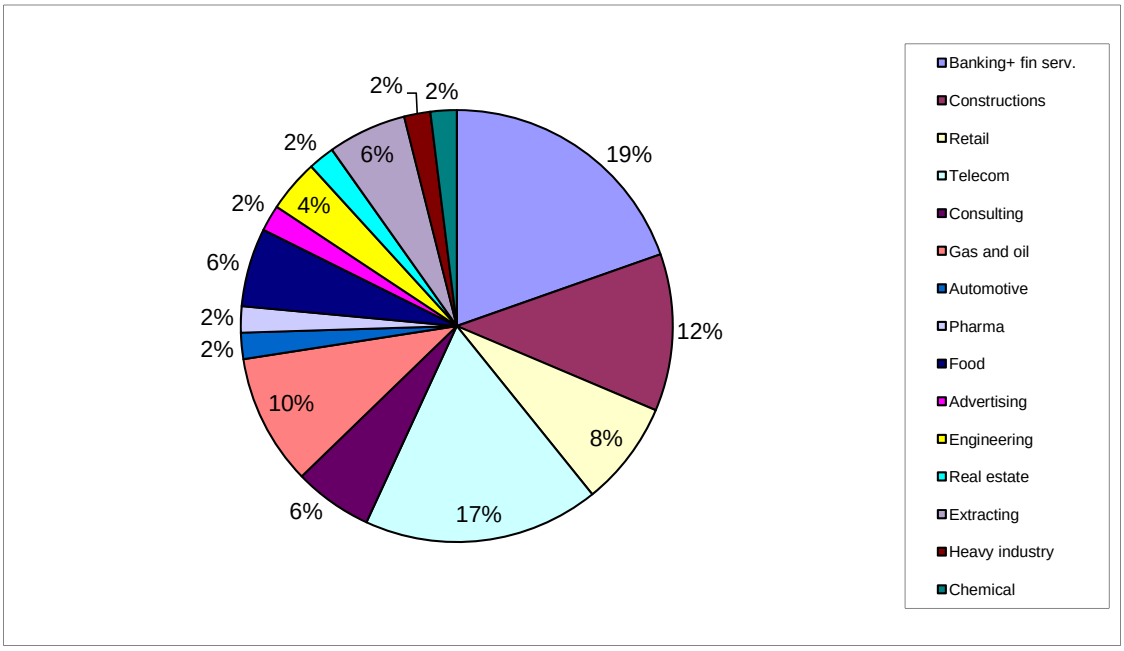
Annex 1

The structure of the EMBA program respondents by industry



Annex 2

Q1 in April 2009 survey: Which are the three most effective measures in coping with the crises until now at the level of your company?

Category -"Other"

increase selling efforts, increase the quality of services
increase selling efforts, attention to human resources management., new leadership
preserve cash, elaboration of alternative budgets
layoff the personnel, revision of the investment plan, better collection
communication- clear message of CEO about the need of doing business differently, develop new strategies, develop a culture of continuous improvement
preserve cash, encourage new idea, efforts for developing the group spirit
motivation of the personnel, revision of the investment plan, better collection
reallocation of performing persons from production to sales and marketing, identification of new financial sources, development of the business in the niche segment, focus on the big contracts or accounts of the competition not renewed
reduction in supply time with 20% smaller than in 2008

Annex 3
Question in January 2010 survey: Which are the three most effective measures in coping with the crises until now at the level of your company?

Category -"Other"

Redesign company's strategy, operations, structure

Other	
Benefit from opportunities the crisis offers – competitors in distress situation	1
Introduction of automatic control systems and redesign the working loads	1
the work that was done by subcontractors has been brought "in house"	1
Increase efficiency (packages, deliveries, special services adapted to customer's needs)	1

Changes in operation- relations with clients

Other	
Retention and selection of the clients with the ability to pay	1
Online sales	1

Changes in operation- staff

Other	
Extra-hours labor	1

Changes in operation- structure, portfolio, quality of production

Other	
Replace the row material with cheaper one	1
Keep the budget but increase the objectives	1
Enhancing supply chain management, reducing standard stocks, etc	1
Increased production regulation - rules and procedures to be applied in all affiliates	1
Consumption reduction	1

Changes in cash management

Other	
renegotiations' with the suppliers longer terms of payment, using the compensation for product or services –barter..)	1
create global cash pooling policy avoid to borrow from local sources	1
hedging for ex rate and interest volatility	1
renegotiate most of its OPEX contracts targeting to denominate them in local currency	1
forced the cash-in of delayed payment – including a temporary ceased co-operation with some customer	1

COST OF CAPITAL ESTIMATION FOR MAJOR CORPORATIONS. EVIDENCE ON BEST PRACTICE

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Abstract. *This paper presents the theoretical background concerning capital budgeting techniques and cost of capital estimation and a literature review on cost of capital estimation practice applied by key European corporations as opposed to Asian and American firms. Previous studies showed that the most commonly used model for estimating the cost of equity is the CAPM with major differences concerning the choice of variables. This broad estimating divergence has major implications on the decision making process and capital budgeting techniques.*

Keywords: cost of equity; capital budgeting; WACC; discount rate; DCF methods.

JEL Codes: G31, G32.
REL Codes: 11D, 11E.

1. Introduction

Capital projects usually involve massive yearly expenditure, justifying the foremost concern of financial theory and practice in developing wise decision making procedures.

The investment decision has become extremely complex due to the pressure of external factor, such as the current market circumstances or the unpredictable future evolution. The capital budgeting process leads to the construction and management of the corporation's assets' portfolio and is very important for a corporation as capital expenditure highly impacts the corporation's performance. It is also essential to evaluate the size, timing and the risk of future cash flows.

The CFOs must be able to decide whether an investment is worth undertaking and be able to wisely choose between two or more alternatives. In order to apply DCF capital budgeting techniques (NPV, IRR and the discounted pay-back period) financial managers need to estimate the discount rate. Recent studies have shown that corporations use the WACC in order to discount cash-flows also considering the tax effects. Anyway, the WACC should be risk adjusted in order to reflect substantive disparities between diverse businesses in the corporation. Going even further, we find that practitioners encounter serious dilemma in choosing beta, the risk-free rate and the equity market risk premium.

In this paper we shortly present the theoretical background concerning capital budgeting techniques and cost of capital estimation and a literature review on cost of capital estimation in practice and capital budgeting techniques applied by key European corporations as opposed to Asian and American firms.

2. Theoretical background on capital budgeting techniques and cost of capital estimation

Capital budgeting is a multi-faceted activity that implies several stages: strategic planning, identification of unexplored opportunities, project proposal, evaluation process, selection decision, project implementation and project monitoring.

Projects proposals pass to the evaluation process also called quantitative analysis, economic and financial appraisal or project analysis. This project analysis may predict the expected future cash flows of the project, assess the risk associated with those cash flows, develop alternative cash flow forecasts, examine the sensitivity of the results to unexpected changes in the predicted cash flows, subject the cash flows to simulation and prepare alternative estimates of the projects' NPV. Financial appraisal will provide the estimated addition to the firm's value in terms of the project's NPV.

Capital budgeting methods are divided into two categories:

a). simplified or traditional methods such as the accounting rate of return, return on investment or payback period;

b). discount based methods such as net present value, internal rate of return, profitability index, modified internal rate of return, modified net present value, equivalent annuity, discounted payback period.

DCF methods are more sophisticated due to the rigor of choosing the discount rate. Most corporations use the weighted average cost of capital (WACC) in order to discount future cash-flows. Unless a corporation obtains a rate of return higher than its cost of capital it won't add value for the investors. When estimating a company's cost of capital CFOs must take into account several aspects: costs of debt and equity must be current costs reflecting the current market conditions; the cost of debt must reflect the benefits of tax shields; the weights must be market weights.

According to Miller and Modigliani's assumptions, the opportunity cost of capital is calculated as the expected rate of return on a portfolio of all the firm's outstanding securities:

$$r = WACC = r_d \times \frac{D}{V} + r_e \times \frac{E}{V}, \; V = D + E \qquad (1)$$

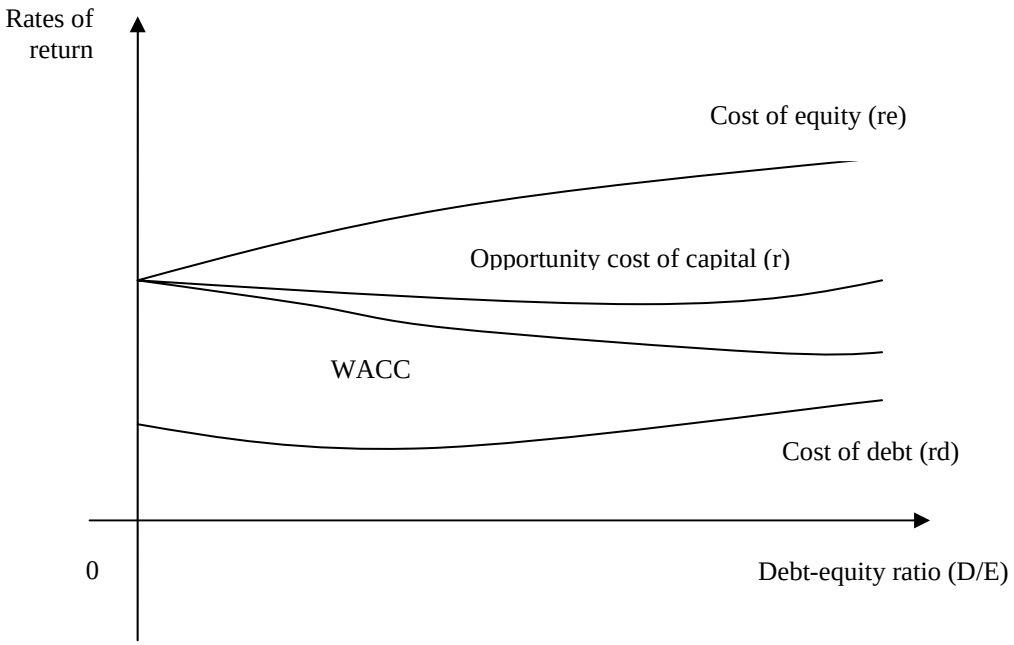
In order to integrate the tax effects considering that interest payments are tax deductible, financial theory suggests the use of the following relation:

$$WACC = r_d \times (1 - T_c) \times \frac{D}{V} + r_e \cdot \frac{E}{V} \qquad (2)$$

where: *Tc* is the marginal corporate tax rate.

Tax advantages of debt financing are reflected in a lower discount rate.

The WACC formula assumes that the project will be financed in the same proportions of debt and equity as the firm as a whole. Otherwise the elements of the WACC formula except the tax rate will change. Myers et al. (2005) describe the procedure of WACC adjusting when risk conditions change.



Source: *Brealey R., Myers S., Principles of Corporate Finance.*

Figure 1. *WACC adjustment to D/E ratio*

If the debt ratio increases, the cost of equity will increase due to higher financial risk but the WACC declines because of the tax shields on debt interest payments. If there were no corporate income taxes the WACC would be constant and equal to the opportunity cost of capital at all debt ratios. If the debt ratio changes there are three steps that an investor must follow in order to recalculate the WACC (Myers et al. 2005):

Step 1. Calculate the opportunity cost of capital. This step is called unlevering the WACC. The simplest unlevering formula is:

$$\textit{Opportunity cost of capital} = \mathrm{r} = r_d \times \frac{D}{V} + r_e \times \frac{E}{V} \quad (3)$$

This formula comes directly form MM's proposition I. If taxes are left out, the WACC equals the opportunity cost of capital and is independent of leverage.

Step 2. Estimate the cost of debt *rd* at the new debt ratio and calculate the new cost of equity.

$$r_e = r + (r - r_d) \times \frac{D}{E} \quad (4)$$

This formula is MM's proposition II.

Step 3. Recalculate the WACC at the new financing weights.

$$WACC = r_d (1 - T_c) \frac{D_1}{V} + r_e \times \frac{E_1}{V} \quad (5)$$

The next major problem is to estimate the cost of equity. The most frequently used model is the CAPM. According to this model the cost of equity for a corporation depends on three components: the risk-free rate, the stock's equity beta and the market risk premium:

$$k_e = E(R_{stock}) = R_f + \beta_{stock} \times [E(R_M) - R_f] \quad (6)$$

Usually the risk free rate is represented in practice by the 90-day Treasury bill yield or by long term Treasury bond yield. The beta measures the risk of the company's stock relative to the market index and is calculated based on historical data using the market model:

$$R_{stock,t} = \alpha_{stock} + \beta_{stock} \times R_{M,t} \quad (7)$$

The equity market risk premium measures the excess return expected by investors on the market portfolio relative to the risk free asset. This component is the most difficult to estimate as it should reflect an expected risk premium but it is calculated based on past returns.

3. Literature review on best practices in estimating the WACC

Block (1997) showed that the most frequently used capital budgeting techniques by small corporations is the payback period. According to Graham and Harvey (2001), even major American corporations calculate the payback period though the decision making process is based on NPV and IRR. 75% of the CFOs always use NPV and 76% always use the IRR method. 73% of these companies (from US and Canada) were using the CAPM as the main cost of equity estimation model.

Fewer studies have been developed in this area for Asia-Pacific. Kester *et al*. (1999) used information from 226 companies in Australia, Hing Hong, Indonesia, Malaysia, the Philippines and Singapore and showed that the payback period is still an important method for project selection. 95% of the Asian countries calculate the payback period but they also use the NPV when evaluating projects.

Brounen et al. (2004) developed a study upon four European countries (UK, France, Germany and Netherlands) finding that the payback period is more popular than NPV and IRR. Only 34%-56% corporations use the CAPM, while 29% to 53% of European corporation use real options in projects' evaluation. Studies on UK practice showed that almost 97% of the corporations use either NPV or IRR in the decision making process, half of them estimating the cost of equity based on CAPM. According to McLaney et al. (2004), 53% of UK firms calculate WACC for project appraisal but only 67% of them consider tax effects when estimating the cost of capital.

According to Bruner et al. (1998) the best current practices in WACC estimation are:

- when calculating the weights we should take into account the market value of equity and debt;
- most corporations surveyed rely on published sources for beta, preferring that it is calculated based on a long interval of equity returns;
- most corporation use the yield on the US government Treasury bond of 10 or more years in maturity;
- the equity market risk premium is a very confusing variable varying from 6% to 12% among respondents.

They developed the study using a sample of 27 highly regarded US corporations in order to identify the ambiguities in applying cost of capital models and to offer estimation practices for interested corporations.

Hermes et al. (2005) compare the use of capital budgeting techniques of Dutch and Chinese firms based on a sample of 250 Dutch and 300 Chinese companies in order to relate capital budgeting practices to the level of economic development. The authors bring several arguments in support of their presumption. As financial markets have developed over time, DCF methods have become more necessary and easy to apply. This is also correlated to the development of computer technology which allows the use of sophisticated techniques at a smaller cost. Also the training of CFOs has improved over time, so that they are able to understand better and to use more sophisticated evaluation techniques. The conclusion of the

paper is that the NPV method is more frequently used by the Dutch CFOs than the Chinese CFOs. The last ones estimate the cost of capital less often than the Dutch CFOs. Nevertheless the use of IRR method and the use of the CAPM don't differ significantly between the two countries.

4. Conclusions

Recent studies show that over time the use of complicated discounted cash-flow methods has become necessary due to the development of the financial markets and the increasing importance of shareholders maximization.

The most widely used model for cost of equity estimation in practice is the CAPM. The discount rate is usually the WACC adjusted only by a few number of corporations, while the other consider the WACC constant over the project's life.

Unfortunately there are same ambiguous areas of the financial theory which remain to the CFOs' judgement and resolution. One of them is the choice of the CAPM variables which may affect dramatically the final result and the final decision. Another one concerns the WACC adjustment for risk which is very important in distinguishing between capital costs in different divisions of a corporation or between domestic and international investments.

All these papers aim to enlighten the best practices in the capital budgeting process in order to help implicated corporations developing a set of rules meant to offer a higher accuracy to the estimation procedure. The development of additional tools for assessing relative risk is needed as risk adjusted discount rates is restricted by the lack of good market proxies. Many studies insisted on the disparity of the equity market risk premium calculation suggesting that further research in this field is necessary.

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SPLINE REGRESSION AND RESEARCH OF CAPITAL MARKET UNDER FINANCIAL CRISES IMPACT[*]

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Abstract. *Identifying mathematical and statistical models which to insure a theoretical evaluation closer to empirical data observed represents an important preoccupation for both theoretical and practical professionals in the financial field. Over time there were elaborated models which forecast the evolution of markets and also to explain the past evolutions.*

The present paper intends to describe the spline regressions as simple solutions for explaining the historical values and for forecast the future ones. The spline regressions are relative easily to develop and manage if compared to complex models developed over time, offering explanatory and forecasting results superior to simple regressions.

Keywords: assets return; spline regression; market model; subsets of data; standard deviation of errors.

JEL Code: G120.
REL Cod: 11B.

1. Introduction

Correct evaluation and forecast of capital market and financial assets prices evolution is a wide debated and research subject. The financial crisis that affects the world economy starting from 2008 had put back the issue of assets evaluation through the main concerns of the world's economists.

Regarding this, the spline regressions are useful, as models somewhat easy to build and applied, offering good results in data approximation. The advantage of the regression is the split of statistical population in homogeneous groups, researched through a continuous function. Another advantage of spline regression is its capacity of reveal historical evolution of assets, helping in a better understanding of the way the markets function and of investor manifestation.

The paper continuous with the following: chapter 2 presents the spline regression from theoretic point of view and is completed by chapter 3 that offer some pro and adverse sensitive issues of spline regression, while chapter 4 presents cases for usage of spline regression in international studies. Chapter 5 presents data used in studying regression, chapter 6 presents the created and tested model, and chapter 7 points out the results obtained from using the model on data. The paper ends with chapter 8 that presents conclusions and future research directions.

[*] This article is a result of the project POSDRU/6/1.5/S/11 „Doctoral Program and PhD Students in the education research and innovation triangle". This project is co funded by European Social Fund through The Sectorial Operational Programme for Human Resources Development 2007-2013, coordinated by The Bucharest Academy of Economic Studies

2. Spline regression – theoretic description

The evaluation and forecast of financial markets and assets prices evolution became an important preoccupation in the financial scientific world, being as well an interesting subject also for professional people. Over time there were developed mathematical and statistical models more and more complex with purpose of correct evaluation historical price evolution and to determine a model for future forecast as much as possible close for the real economic data.

The developed models have as starting point the relation between the determined variable – for example the price of financial assets, market evolution, so on and the independent variables that influence the evolution. There were created complex regression, that take into count one or more variables endogenous for the system, having more or less complex determining relations, starting from simple linear regressions, logarithmic and exponential regressions to complex regressions with several variables of those modifications influence the dependent variable evolution.

The globalised financial crises impose the rethinking of the existing models to the new markets evolution parameters. In our opinion there can no longer be used regressions calibrated on historical data and just adjusted to present values. The reason of this impossibility is determined by the financial crises that modify the evolution sense for assets prices due to investors' behavioral reactions in assets trading, so most of regressions using historical data for evaluation of present trends are going to fail.

In the scientific literature are already studies that re-evaluate the former way of thinking, that question decisions that in the bull economy before crises were correct. There were re-evaluated trends and marginal rates for consume, economy, investments as well former regressions parameters.

Through the regression models used in evaluation of financial assets price evolution, the spline regression is useful in describing evolutions with opposite trends on successive time intervals. The spline regression allows creation of a general equation, with one or more variables, having simple or complex forms. The main characteristic of this type of regression consist in splitting the studied population in groups with homogeneous characteristics, keeping a unitary form of the regression function.

The spline regression identifies the intervals of homogenous evolution of independent variables and determines the regression slope for each interval. So, there are computed values of dependent variable much more close to the real empirical observations.

The spline regression has the following form: $\hat{y} = \sum_{i=1}^{n} a_i F_i(x)$

where a_i is a different constant specific to each interval, and $F_i(x)$ is a function with form:

$$F_i = \max(b_i, c_i) = \begin{cases} b_i, & \text{if } b_i > c_i \\ c_i, & \text{if } b_i < c_i \end{cases}$$

where b_i is usually a constant and c_i is a function that reflects the relation between the independent variable and the dependent one – can be a linear relation, an exponential or a logarithm function, and so on.

Also function F_i can have one or more independent variables, and F_i=1 is just in one single case when a_i is the intercept.

Considering a linear relation with just one independent variable, the function $F_i(x)$ may have one of the following forms: $max(0, x_i - d_i)$ or $max(0, d_i - x_i)$, with x_i is the independent variable and d_i is a constant proper to each interval. So, the regression is:

$$\hat{y} = \sum_{i=1}^{n} a_i F_i(x) = \sum_{i=1}^{n} a_i max(0, x_i - d_i)$$

If $F_i(x) = 1$ for the intercept, it became: $\hat{y} = a_1 + \sum_{i=2}^{n} a_i max(0, x_i - d_i)$

The regression intervals will be determined by the values for which $F_i(x) = max(0, x_i - d_i)$ is null ($F_i(x) = 0$). Although it seems that determining the intervals is a simple job, in fact this is one of the tricky problems of this function, together with the problem of determining the most adequate form of function $F_i(x)$.

Splitting in intervals is limited only by the number of intervals the user wants and by the relevance of each interval – splitting in too many intervals determine each interval to become irrelevant. As working procedure, the simplest way is a recurrent splitting in intervals, each interval once established is also split in smaller intervals, until the sub-intervals obtained become irrelevant as information.

An important advantage offered by the spline regression is the possibility to create a function $F_i(x)$ continuous on the entire researched interval; function composed from several segments, each having its own regression slope. A method of creating a continuous function is to inherit the characteristics from the above intervals to all the sub-divisions (Friedman, 1991).

3. Spline regression – pro and against aspects

It is obvious that no regression is a magic formula offering solutions for all possible situations and answering all users' expectations. The spline regression offer an increased flexibility in treating economic problems, especially that have changes in the evolution trend or changes in influence of the independent variables over dependent variable – the regression slope.

The aspects for and against presented further have general character and are not exhaustive. Depending on the studied problem and on the results expected by user, there can be other arguments pros and cons or some of the presented arguments may not be applicable.

The argument that recommends the usage of spline regression is its flexibility in presenting the evolution of phenomenon on intervals with various evolutions. There is more than just a better determination for values of dependent variable, but also can be seen the manner of evolution of independent variables over time and the manner there evolution influence the one of the dependent variable.

Comparing with a simple linear regression, the spline regression offer much information regarding the evolution over tine of the independent variables, modification of regression slope in various intervals – the influence of the independent variables over the dependent variable evolution, and also it adapts better to evolution of empirical data observed.

If considering that $y_j - \hat{y}_j = \varepsilon_j$, then the spline regression offer a better approximation for computed values, a smaller value for standard deviation of error for the entire population.

For each empiric observation (we note y_j^i - dependent variable y_j from the i interval), the standard error is: $y_j^i - \hat{y}_j^i = y_j^i - [a_1 + \sum_{i=2}^{n} a_i max(0, x_i - d_i)] = \varepsilon_j^i$.

For a single specific interval $i = k$, the function $F_i(x) = a_k max(0, x_k - d_k)$; the rest of equations with form $max(0, x_k - d_k)$ where $i \neq k$ are null: $\max(0, x_k - d_k) = 0$, where $i \neq k$

So, for an empiric observed value $y_j^{i=k}$:

$$y_j^k - \hat{y}_j^k = y_j^k - [a_1 + a_k max(0, x_k - d_k)] = \varepsilon_j^k$$

The variation of the error resulting from computed data relative to empirical values is smaller for the spline regression then in case of a simple linear regression. The spline regression can offer results comparable with the results from a complex equation, but is easier of manage and simple to interpret.

As any other regression function, choosing the independent variables and the equation for the model is still a user job.

For a facile usage of the spline regression there were developed couple of software, that can determine the important independent variables and can eliminate the independent variables with limited or no influence over the dependent variable. But the validation of excluding an independent variable is put in user hands, which can maintain or validate the exclusion from equations of irrelevant variables.

A restriction in dedicated software is regarding the limited number of recurrences realized for determining the intervals. Also the decision regarding the number of intervals is in user hands, there is a maximum limit that cannot be exceeded. For a normal volume of data this limitation is no problem, but for large volumes of data with multiple independent variables, with frequently changing in parameters and in evolution trends, to create a precise spline regression model can became impossible.

The major advantage of the software developed is the possibility of managing spline regression with a relative large volume of data in a shorter time, the procedure of creating the regression consists in repeating the same steps. As an example, a volume of couple hundreds of thousands of observations (10^5 observations), having a single variable and some 100 intervals can be computed on a regular personal computer in about one minute. Of course, depending on the number of independent variables, volume of observations and the number of intervals (determined by data homogeneity and by the precision of results expected), the time for processing data increase exponentially. This type of software are easily to develop by a person with average programming abilities, such applications are available on internet, but the powerful computation and high precise versions are produced and commercialized by licentiate software producers.

4. Spline regression in the national and international literature

The issue studied is researched in several scientific domains such as: mathematics – multivariate forecast functions, statistics – non-parametric multiple regression, engineering and software development – neuronal networks.

Friedman (1991) starts from the issue of finding a forecast function based on empiric observed data for dependent variable and obtains a function that reduces the forecast standard errors and in the same time offers a better understanding of the evolution of dependent variable based on independent variables evolution. Friedman expands the “recursive partitioning regression” model that implies a series of function adapted to each sub-region from the researched space. Partitioning in sub-regions is realized throw splitting the initial space in two sub-regions, process repeated until the total number of obtained sub-regions is optimal based on a penalty criterion counting the increase in sub-regions number and sub-regions homogeneity. For each sub-region there is created its own function that emphases the regional influence of some independent variables.

The function developed by Friedman uses the additive method, by including in one function of all the functions of the sub-regions and nullifies the sub-regions functions depending on independent variables values. There is ensured the continuity character of the general function, and also for the sub-regions limits. In the researched model, the sub-regions inherit the function of the parent-region and add new characteristics according with the influence of independent variables specific to each region; the rank of the resulting function is equal to the number of splitting realized.

Many other economic domains use non-parametric functions for observing the economic processes laws (non-parametric models adapts the evolution in time of data and do not have a dependency form established from beginning). Richard Blindell, Xiaohong Chen and Dennis Kristensen (2007) used a non-parametric model in order to study the relation between good demands and household budgets. The model created by them is different from the one of Friedman, being adapted to the own research, but maintaining the same research line – minimizing the forecast error of the model related to the sums of functions for each subsets of data in a single general function and highlighting the own characteristics of each subset.

Priya Ranjan and Justin L. Tobias (2007) use the tobit model for estimation of commercial trades between two states counting the GDP of the two states and their neighborhood; the tobit model is somewhat similar, implying null value of a function if there is not accomplished the condition that an independent variable to be in a set of values.

Robert F. Engle and Jose Gonzalo Rangel (2008) studied the volatility of the financial market in correlation with macroeconomic evolution for 50 states, using a GARCH-spline regression model for describing the trend with reduce frequency of the macroeconomic variable volatility in time. The authors created a function continuous appropriate for both description of independent variables influence over the dependent one and highlight the evolution of dependent variable in time (evolution of GDP and yield rate having significant influence, but also inflation, number of companies listed on the stock exchange, volume of financial market compared with the GDP).

Usage of spline regression is largely spread in other domains of activity, being also used in analyses regarding public health, demographic research, so on. If the variety of models developed is adapted to the researched themes, for certain all models have common elements that sustain in favor of usage of spline regression: all papers using spline regression for determine models that approximate precisely the empirical reality. All researched follow that regression developed to be easy to use and in the same manner flexible, adapted to evolution of data over time. Many papers include as an essential feature not only determination of flexible and data adapted regressions but also ways for development of these regressions in order to reproduce data in a more exactly manner.

5. Data

The data utilized for the present paper is the set of daily prices of shares (close prices) from Bucharest Stock Exchange (BVB), registered between May 15 and November 11 2009, a total of 128 daily prices. The purpose of the present paper is to highlight the utility of using the spline regression; that is why we use a limited number of data.

The capital market in Romania has a reduce liquidity, only a few shares have daily quotations. We use for measuring shares return only those shares that have a number of daily quotations as close to the maximum number as possible. For this we are using quotation of the following shares: SIF5, SIF2, TLV, BRD, SIF3, SNP, SIF4, SIF1, TGN – the value of transactions of those titles represents in average about 75% of the volume of transactions from BVB.

As representation of market evolution we use the stock indexes BET-XT (that represents the evolution of stock exchange in general including all shares from the market),

BET-C (that represents evolution of stock exchange including all shares except SIFs) and BET-FI (that represents the evolution of SIFs market of the stock exchange).

We split the population in six sub-regions, from day 15 of month X until day 14 of month X+1. This splitting is arbitrary, without having a criterion like: determining the number of intervals based on statistical calculation or following the empirical trend of market evolution. The splitting process follows the procedure used in scientific literature, but without using a penalty based on increase in the sub-regions number or data homogeneity in each sub-region.

6. Spline regression model researched

We use for testing spline regression the market model. The regression linear form of the basic model is: $\hat{R}_i = \alpha_i + \beta_i \times R_{Mi} + \varepsilon_i$ having $\overline{R_i} = \alpha_i + \beta_i \times \overline{R_M}$.

The spline regression used will be:

$$\hat{R}_{ij} = \sum_{j=1}^{6} \left[\left(\alpha_j + \beta_j \times R_{M_{ij}} \right) \times \left(1 - \frac{1}{\left(T_{Mj} - t_{ij} \right) \times \left(T_{mj} - t_{ij} \right)} \max(0, \left(T_{Mj} - t_{ij} \right) \times \left(T_{mj} - t_{ij} \right)) \right) \right]$$

where $\hat{R}_{ij}$ represents the return computed for day i from the sub-region j (the research population is split in six sub-regions), α_j, β_j are constants proper to each sub-regions, and R_{Mij} represents capital market return from the day i from the j sub-region, T_{Mj} is the last number (as order) in the sub-region, T_{mj} - the first number (as order) from the sub-region, t_{ij} - the current position.

The error will be computed by comparing the empirical value of R_{ij} with the computed value of the daily return $\hat{R}_{ij}$: $\varepsilon_{ij} = R_{ij} - \hat{R}_{ij}$.

For both regressions there will be determine the standard deviation of errors: $\sigma^2(\varepsilon_i) = \frac{1}{T-1} \times \left(\varepsilon_i - \overline{\varepsilon_i} \right)^2$.

In various analyses combinations, R_M is represented by BET – C, BET-FI şi BET-XT

Ri is the return of the following shares: SIF5, SIF2, TLV, BRD, SIF3, SNP, SIF4, SIF1, TGN.

Because BET-C and BET-FI are indexes proper to some markets composing the BVB, only the following combinations are possible:

Table1

Possible combinations between R_i and R_M

	BRD	SIF1	SIF2	SIF3	SIF4	SIF5	SNP	TGN	TLV
BET-C	x						x	x	x
BET-FI		x	x	x	x	x			
BET-XT	x	x	x	x	x	x	x	x	x

7. Results obtained from using the model

From using the simple linear regression we obtained the following results:

Table 2

Result from applying linear regression on data

Linear Regression												
	BRD	SIF1	SIF2	SIF3	SIF4	SIF5	SNP	TGN	TLV	BET-C	BET-FI	BET-XT
Average	0.58%	0.31%	0.40%	0.43%	0.18%	0.31%	0.24%	0.01%	0.62%	0.31%	0.33%	0.38%
StDev	2.52%	3.25%	3.61%	3.27%	2.90%	3.40%	2.77%	1.60%	2.81%	1.82%	3.16%	2.22%

βi	BRD	SIF1	SIF2	SIF3	SIF4	SIF5	SNP	TGN	TLV
BET-C	1.25						1.30	0.65	1.04
BET-FI		0.98	1.11	1.00	0.86	1.04			
BET-XT	1.00	1.25	1.43	1.29	1.12	1.36	1.03	0.51	0.87

αi	BRD	SIF1	SIF2	SIF3	SIF4	SIF5	SNP	TGN	TLV
BET-C	0.20%						-0.16%	-0.19%	0.31%
BET-FI		-0.02%	0.03%	0.10%	-0.11%	-0.03%			
BET-XT	0.20%	-0.17%	-0.15%	-0.07%	-0.25%	-0.21%	-0.15%	-0.19%	0.29%

$\sigma^2(\varepsilon_i)$	BRD	SIF1	SIF2	SIF3	SIF4	SIF5	SNP	TGN	TLV
BET-C	0.22%						0.24%	0.07%	0.18%
BET-FI		0.39%	0.50%	0.40%	0.31%	0.43%			
BET-XT	0.21%	0.33%	0.43%	0.35%	0.27%	0.38%	0.23%	0.06%	0.19%

Applying the spline regression on data we obtained the following results:

Table 3

Results from aplying the spline regression for BET-C, BET-FI and BET-XT

Spline Regression

Market Index = BET - C

	Average				
SubRegiune	BRD	SNP	TGN	TLV	BET-C
SR1	1.27%	1.42%	0.36%	1.17%	0.89%
SR2	-0.29%	-0.67%	-0.36%	-0.61%	-0.44%
SR3	1.67%	0.74%	0.38%	1.26%	0.91%
SR4	0.29%	-0.22%	-0.18%	0.62%	0.03%
SR5	0.21%	0.36%	-0.04%	0.41%	0.48%
SR6	0.37%	-0.10%	-0.10%	0.98%	-0.01%

	StDev				
SubRegiune	BRD	SNP	TGN	TLV	BET-C
SR1	2.58%	2.97%	1.91%	2.81%	1.82%
SR2	1.62%	2.93%	1.48%	2.56%	1.68%
SR3	2.14%	2.52%	1.48%	3.99%	1.55%
SR4	3.23%	2.80%	1.94%	2.75%	2.08%
SR5	2.32%	2.72%	1.48%	1.93%	1.68%
SR6	2.75%	2.45%	1.36%	2.05%	1.87%

βi / BET-C	BRD	SNP	TGN	TLV
SR1	1.34	1.34	0.79	0.96
SR2	0.86	1.55	0.59	1.15
SR3	1.16	1.32	0.51	1.87
SR4	1.44	1.20	0.75	1.01
SR5	1.25	1.38	0.63	0.75
SR6	1.00	0.80	0.47	0.47

αi / BET-C	BRD	SNP	TGN	TLV
SR1	0.08%	0.22%	-0.35%	0.31%
SR2	0.09%	0.01%	-0.11%	-0.10%
SR3	0.61%	-0.48%	-0.08%	-0.45%
SR4	0.25%	-0.25%	-0.20%	0.59%
SR5	-0.39%	-0.30%	-0.34%	0.05%
SR6	0.39%	-0.09%	-0.10%	0.99%

$\sigma^2(\varepsilon_i)$	BRD	SNP	TGN	TLV
BET-C	0.01%	0.02%	0.01%	0.04%

Market Index = BET - FI

	Averaee					
SubRegiune	SIF1	SIF2	SIF3	SIF4	SIF5	BET-FI
SR1	1.17%	1.04%	1.13%	0.67%	0.87%	1.04%
SR2	-0.72%	-0.58%	-0.63%	-0.31%	-0.78%	-0.61%
SR3	1.24%	1.61%	1.65%	0.76%	1.66%	1.38%
SR4	0.52%	0.59%	0.99%	0.37%	0.29%	0.56%
SR5	0.17%	0.23%	0.07%	0.22%	0.09%	0.15%
SR6	-0.50%	-0.54%	-0.67%	-0.66%	-0.29%	-0.53%

	StDev					
SubRegiune	SIF1	SIF2	SIF3	SIF4	SIF5	BET-FI
SR1	3.48%	3.90%	3.25%	3.08%	3.63%	3.39%
SR2	4.04%	4.06%	3.89%	3.73%	3.90%	3.80%
SR3	2.67%	3.18%	2.41%	2.22%	3.01%	2.53%
SR4	2.61%	3.31%	3.56%	2.52%	3.09%	2.93%
SR5	3.34%	3.65%	2.97%	2.71%	3.29%	3.07%
SR6	3.01%	3.37%	3.03%	3.04%	3.26%	2.99%

βi / BET-FI	SIF1	SIF2	SIF3	SIF4	SIF5
SR1	0.97	1.11	0.95	0.89	1.01
SR2	1.05	1.03	1.00	0.92	1.01
SR3	0.98	1.22	0.89	0.79	1.13
SR4	0.85	1.10	1.16	0.83	1.03
SR5	1.02	1.17	0.95	0.85	1.03
SR6	1.24	1.44	1.24	1.23	1.38

αi / BET-FI	SIF1	SIF2	SIF3	SIF4	SIF5
SR1	0.16%	-0.12%	0.14%	-0.25%	-0.17%
SR2	-0.08%	0.05%	-0.02%	0.25%	-0.16%
SR3	-0.11%	-0.08%	0.42%	-0.33%	0.10%
SR4	0.05%	-0.02%	0.34%	-0.09%	-0.28%
SR5	0.02%	0.06%	-0.06%	0.09%	-0.06%
SR6	0.16%	0.23%	-0.01%	0.00%	0.45%

$\sigma^2(\varepsilon_i)$	SIF1	SIF2	SIF3	SIF4	SIF5
BET-FI	0.01%	0.01%	0.01%	0.01%	0.01%

Market Index = BET - XT

	Averaee									
SubRegiune	BRD	SIF1	SIF2	SIF3	SIF4	SIF5	SNP	TGN	TLV	BET-XT
SR1	1.27%	1.17%	1.04%	1.13%	0.67%	0.87%	1.42%	0.36%	1.17%	1.12%
SR2	-0.29%	-0.72%	-0.58%	-0.63%	-0.31%	-0.78%	-0.67%	-0.36%	-0.61%	-0.49%
SR3	1.67%	1.24%	1.61%	1.65%	0.76%	1.66%	0.74%	0.38%	1.26%	1.11%
SR4	0.29%	0.52%	0.59%	0.99%	0.37%	0.29%	-0.22%	-0.18%	0.62%	0.28%
SR5	0.21%	0.17%	0.23%	0.07%	0.22%	0.09%	0.36%	-0.04%	0.41%	0.33%
SR6	0.37%	-0.50%	-0.54%	-0.67%	-0.66%	-0.29%	-0.10%	-0.10%	0.98%	-0.02%

	StDev									
SubRegiune	BRD	SIF1	SIF2	SIF3	SIF4	SIF5	SNP	TGN	TLV	BET-XT
SR1	2.58%	3.48%	3.90%	3.25%	3.08%	3.63%	2.97%	1.91%	2.81%	2.37%
SR2	1.62%	4.04%	4.06%	3.89%	3.73%	3.90%	2.93%	1.48%	2.56%	2.28%
SR3	2.14%	2.67%	3.18%	2.41%	2.22%	3.01%	2.52%	1.48%	3.99%	1.92%
SR4	3.23%	2.61%	3.31%	3.56%	2.52%	3.09%	2.80%	1.94%	2.75%	2.39%
SR5	2.32%	3.34%	3.65%	2.97%	2.71%	3.29%	2.72%	1.48%	1.93%	2.06%
SR6	2.75%	3.01%	3.37%	3.03%	3.04%	3.26%	2.45%	1.36%	2.05%	2.10%

βi / BET-XT	BRD	SIF1	SIF2	SIF3	SIF4	SIF5	SNP	TGN	TLV
SR1	1.02	1.33	1.44	1.30	1.22	1.34	1.03	0.55	0.69
SR2	0.64	1.62	1.51	1.52	1.43	1.55	1.06	0.39	0.85
SR3	0.92	1.05	1.33	1.00	0.91	1.19	0.98	0.48	1.62
SR4	1.21	0.97	1.31	1.25	0.96	1.19	1.01	0.62	0.92
SR5	0.98	1.26	1.56	1.24	1.13	1.46	1.08	0.54	0.56
SR6	1.00	1.04	1.28	1.12	1.06	1.24	0.80	0.46	0.53

αi / BET-XT	BRD	SIF1	SIF2	SIF3	SIF4	SIF5	SNP	TGN	TLV
SR1	0.12%	-0.32%	-0.57%	-0.32%	-0.69%	-0.63%	0.26%	-0.26%	0.39%
SR2	0.03%	0.07%	0.16%	0.11%	0.39%	-0.02%	-0.15%	-0.17%	-0.19%
SR3	0.65%	0.07%	0.14%	0.54%	-0.25%	0.33%	-0.35%	-0.15%	-0.54%
SR4	-0.05%	0.25%	0.22%	0.64%	0.10%	-0.05%	-0.50%	-0.36%	0.36%
SR5	-0.11%	-0.24%	-0.28%	-0.33%	-0.15%	-0.39%	0.01%	-0.21%	0.22%
SR6	0.39%	-0.49%	-0.52%	-0.65%	-0.64%	-0.27%	-0.09%	-0.10%	0.99%

$\sigma^2(\varepsilon_i)$	BRD	SIF1	SIF2	SIF3	SIF4	SIF5	SNP	TGN	TLV
BET-XT	0.01%	0.03%	0.03%	0.02%	0.02%	0.02%	0.02%	0.01%	0.03%

There is the possibility to analyse the evolution of each share between the 6 sub-regions and also market evolution. If we analyse the shares SIF that have their sub-market of BVB and the own index, we can conclude to:

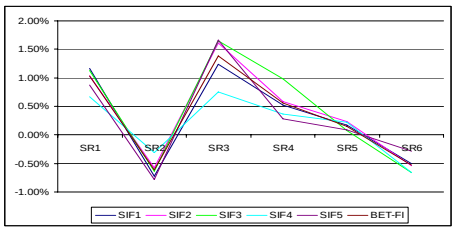

Figure 1. *Evolution of shares SIF and index BET-FI*

The evolution of the market (represented by BET-FI) follows the shares evolution, a predictable aspect duet o the powerful correlation between shares. Interesting is the fact that we can see the market and share dynamic over time. Comparing with the linear regression where market is described by its average evolution, the spline regression offers also the detail of evolution between sub-regions.

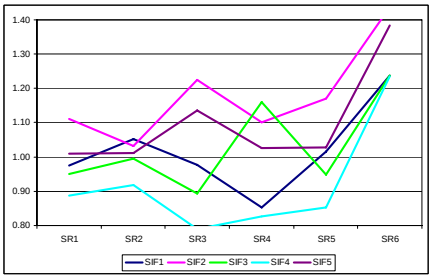

Figure 2. *Evolution of regresion slope of SIFs*

We can see the evolution of regression slopes of the five shares related to the market. Each SIF had a different slope in each of the 6 sub-regions, which mean that over time the investor preferences vary and do not have a linear evolution as resulting from the linear regression.

Table 4

Comparative results between linear and spline regression

Linear vs Spline Regression									
Linear Regression									
$\sigma^2(\varepsilon_i)$	BRD	SIF1	SIF2	SIF3	SIF4	SIF5	SNP	TGN	TLV
BET-C	0.22%						0.24%	0.07%	0.18%
BET-FI		0.39%	0.50%	0.40%	0.31%	0.43%			
BET-XT	0.21%	0.33%	0.43%	0.35%	0.27%	0.38%	0.23%	0.06%	0.19%
Spline Regression									
$\sigma^2(\varepsilon_i)$	BRD	SIF1	SIF2	SIF3	SIF4	SIF5	SNP	TGN	TLV
BET-C	0.01%						0.02%	0.01%	0.04%
BET-FI		0.01%	0.01%	0.01%	0.01%	0.01%			
BET-XT	0.01%	0.03%	0.03%	0.02%	0.02%	0.02%	0.02%	0.01%	0.03%

From comparing results of the two types of regression there can be seen superior results obtained from spline regression, measured by standard deviation of errors registered between empirical and calculated values. From values between 0.22% and 0.50% for the simple linear regression, it gets to values between 0.01% and 0.04% for the spline regression.

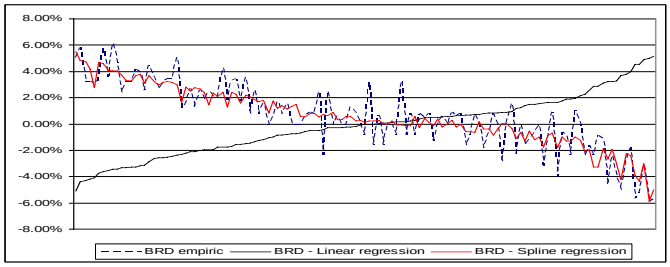

Figure 3. *Aproximation of values from the two regressions – linear and spline*

The spline regression follows in a better way the empirical values, even if it registers some error in prediction. Linear regression is not able to follow the trend in the same manner, being inadequate.

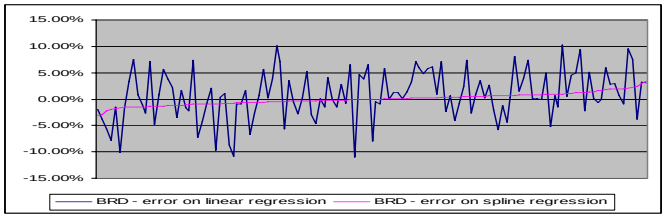

Figure 4. *Evolution of approximation errors*

The errors resulting from computing data with the spline regression are almost zero, comparing with the results from the linear regression that vary substantial (between -11% and 10%).

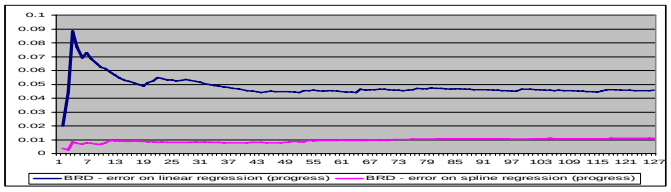

Figure 5. *Evolution over time of standard deviation of errors*

The standard deviation of errors is limited for the linear regression at lower values, while linear regression generates a standard deviation of errors 4 times higher.

8. Conclusions

The spline regressions proved to have a higher ability of following the trends resulting from empirical data relative to other regressions. The spline regressions also highlight the evolution over time of phenomenon, showing the evolution in costumers' preferences for a market or a specific share (through the regression slope). All elements presented within this paper recommend the use of spline regression, as simple to create models, easy to develop and can ensuring the continuity of the regression function.

Future directions of research will be orientated in creating some spline regression models more complex in order to follow empirical trends in a much better manner, study the problem of determining relevant sub-regions, testing the models on data extended as time covered and as number of assets involved, and also in using the computation technique in elaborating, testing and managing spline regression.

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EFFECTS OF THE PROCESS OF GLOBALIZATION UPON THE COMPANY

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Abstract. *Globalization is not a new phenomenon, "the companies" being always connected to each other, to varying degrees. The process of economic globalization is an objective and necessary to know the many stages and forms, from simple to more complex ones, including the organization of supra-national integration tools.*

The phenomenon of globalization is marked by an integration of the economies of various countries, which changes the entire quality of the various scaffold structures of national economies. Hundreds of initially closed economies, become, in time, part of an economy which is manifested through global connections, with many advantages and disadvantages.

Keywords: globalization, market liberalization, financial indicators.

JEL Code: O53.
REL Codes: 10, 10J.

1. Introduction

The processes of globalization – objective processes – are unavoidable as a result of increased economic interdependence between states and states of the world economy's dependence, the inevitable opening of national economies to the outside.

Developments at the firm or government are not sufficient to produce the phenomenon of globalization. For its production requires deliberate intervention of public authorities. It is envisaged that most of the countries have agreed to liberalize capital flows only in the mid 80s, before showing reluctance to entry of foreign capital into their economies. Without acceptance by national authorities of dropping barriers to the internationalization of their economy, globalization would not be achieved. They meet the idea that globalization is an objective, he also contain subjective components.

If the process of globalization should be totally objective, it would be irreversible and would enhance and expand the phenomena of liberalization and international integration.(1)

2. The impact of globalization on economic performance highlighted by financial indicators. Study case for: ARABESQUE Ltd Company

The purpose of this research is to analyze the impact of globalization on economic performance highlighted by financial indicators for ARABESQUE Ltd Company, using the diagnostic analysis. The research are used a number of financial indicators to quantify the effects of globalization on economic performance analysis method of input and out-quantification wells. The following information was collected for this:

- General information about the company;
- Information about the financial statements taken from the annual financial statements (ie balance sheet, profit and loss account over the period 2004 to 2009;
- Conditions to be satisfied by a company to be listed on BSE;

2.1. Overview of the company

ARABESQUE is a limited liability company with Romanian capital, of 14.005.000 lei. Company's headquarters is located in Galati, Str. Timis No.1, registered at the Trade Register under the no. J17/666/1994, Fiscal Code: RO 5340801.

ARABESQUE Company was founded in 1994 and it's active in the trade with building materials. During these years it won the trust of customers through a mix of its products and services. All effort is focused towards continuing improving of this investment mix.

2.2. The influence of globalization on financial activity of ARABESQUE Ltd Company

Globalization is one of the most common terms used in particular in the last thirty years.

Of all applications, and most often discussed by the phenomenon of economic globalization, which in turn has a broad spectrum of manifestations in manufacturing activity in the financial system and especially investment in international trade labor migration, tourism and other sectors.

Originally it referred specifically to foreign investment in stocks, in bonds in international trade stimulated by reducing tariffs. Today international trade which attracted hundreds of countries refer to a wide range of finished products of all types, all kinds of raw materials, trade and financial transactions, investments in all fields, exchange of services, etc.

The phenomenon of globalization is marked by an integration of the economies of various countries, which changes the entire quality of the various scaffold structures of national economies. Hundreds of initially closed economies, become part of an economy which is manifested through global connections, with many advantages and disadvantages. In fact one can speak of a strong interrelationship between socio-economic and political factors that have led to the emergence and existence of its continuous stimulation.

Among the most important factors are: development of means of production and consumer goods, the expansion of demand and supply of goods and services, develop means of communication and transportation, labor migration in large scale and of course various forms of capital movement .

In particular, two factors have played a key role in driving this phenomenon, and continue to influence his market liberalization and the manifestation of some of the principles of democracy at the national level and gradually countries worldwide. When these two factors together indicate their presence in a particular country or geographical area, globalization is its presence in an objective manner.

With the continuous development of media and communication (TV, Internet, email, fax, mobile phones and others), the information crosses the globe from one end to another in minutes.

The development of information and communication has been and continues to be a real support of globalization.

Influence of globalization factors:

- Increased diversity of products sold;
- Access to the latest information on technical innovations in the field;
- Access to international procurement sources (providers);
- Reduced costs due to increased diversity of supply;
- Expanding demand for goods and services;
- Access to international commodity markets (see example of the Republic of Moldova);
- Access to cheaper labor force (resultant of the process of labor migration).

Effects of globalization on financial activity ARABESQUE Ltd Company:

- Increase in investment activities (opening new outlets, the development company's logistics department);
- Increased sales volume and turnover;
- Develop systems of society, so as to capture the whole financial picture of the company;
- Opening lines import directly from manufacturers significantly reducing purchasing costs;
- The negative effect was manifested on the management system, which in terms of global economic crisis started, could not effectively manage costs related to the operation of the business expansion that was before the crisis. The amount of these expenses in conjunction with the decrease in sales, led to pressure on the company's bankruptcy risk (late 2010) and the urgent need of economic reform on the financial activity of the company.

2.3. The company's current financial strategy – SWOT analysis

ARABESQUE Ltd Company for fulfilling its mission statement focuses on the following areas:

- Continuous improvement in the level of technical training of all categories of staff in the contact area, in order to provide the best solutions to our customers' demands;
- Improving infrastructure and continuing the process of building their own service areas, with large areas of improved handling and storage facilities;
- Development and diversification of logistics so that it can maintain the maximum period (24 hours on a 100 km radius) to honor any orders, continued growth in terms of number of customers;
- Diversification of product range continues to offer customers new products come onto the market buildings and facilities, but also to provide full range of products;
- Establish the closest relations, partnership type, with internal and external suppliers able to meet our orders on time and at specified quality level;
- Promotion of commercial relations with all win-win for customers to create lasting relationships premises.

Strengths		**Weaknesses**
• Qualified and competitive; • Possession of a significant portfolio of clients; • Well-developed logistics system, the company having possession, storage spaces and their own means of transport; • Offer diversified and adapted to market requirements; • Active policy of promotion based on quality and timeliness in delivery; • Sales Network, established at national level.		• High dynamics of the staff (hiring and firing up to 15% annually); • Low level analysis to reduce the solvency of customers affected by the economic crisis; • Addiction procurement process a certain volume of future sales; • High costs of promotion and advertising; • Fleet maintenance costs allocated to sales agents.
Opportunities • Using loyal customer base, created in time, to increase sales;		**Risks** • Staff training dissipation advantage due to its high growth;

• Optimizing supply through efficient use of logistics system; • Opportunities for expansion of sales, based on ease of use in covering the needs of a wide range of potential customers through offering various goods and services; • Realizing the advantage of image obtained promotion policy practiced by the company.		• Reduce sales because of the economic crisis, an increasing number of customers being focused on the traditional direct producers; • Increased risk of default due to insufficient completion of review of contracts with customers economically speaking; • In the same category of risk is also the working with forms of payment instruments, which it has often proved to be issued without coverage; • Loss of customers due to the need precontrol (even prepaid) for certain goods sales slow This financial blockage existing at macroeconomic level and entirely due to the economic crisis phenomenon.

Source: own contribution.

Figure 1. *SWOT Analysis*

3. Conclusions

The impact of globalization on economic performance highlighted by financial indicators to ARABESQUE Ltd Company are based on the concept of economic crisis (sharply induced by globalization), which exerted a strong negative influence on society and led to radical changes in management practiced from expansionism to conservation.

Note

(1) According to Dumitrescu Sterian, Bal Ana, *Economie mondială*, Editura Economică, Bucureşti, 2002, p. 401.

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COMPARISON OF THE ACCOUNTING CONCEPT "FAIR VALUE" WITH OTHER ECONOMIC VALUE CONCEPTS

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Abstract. *Fair value is a measurement base found both in International Financial Reporting Standards and in Latvian accounting legislation. For the fair value measurements to be meaningful for financial analysts, consultants and other financial statement users, it is important that the fair value concept be understood in relation to other economic value concepts. The purpose of this paper is to compare the fair value concept of financial accounting to other economic value concepts. The qualitative method of logical analysis is the research methodology.*

Keywords: fair value; active market; perfect competition; intrinsic value; financial accounting.

JEL Code: M41.
REL Code: 11F.

1. Introduction

"Fair value" is a concept which was introduced in Latvian accounting legislation in 2003. In the Annual Reports' Law of the Republic of Latvia fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in a transaction between well informed, willing and financially unrelated market participants at the measurement date (Saeima of the Republic of Latvia, 2003).

Following the Latvian accounting standard No. 1 "Framework for the Preparation of Financial Statements" the objective of financial statements is to provide information about the financial position, performance and cash flows of a company that is useful to financial statement users in making economic decisions (Latvian Accounting Council, 2004).

Latvian accounting standard No. 1 "Framework for the Preparation of Financial Statements" does not define financial statement users explicitly. Latvian authors M.Kassale and R.Šneidere, A.Ponomorjovs have studied the financial statement users of Latvian companies. M.Kassale un R.Šneidere consider business managers and owners, business partners (including buyers and suppliers), creditors, employees and labor unions, financial analysts and consultants, insurance companies, State Revenue Service and State Statistical Bureau as the financial statement users (Kassale, Šneidere, 2004). In the opinion of A.Ponomorjovs, the financial statement users are business owners, shareholders, creditors, state institutions, banks, investors as well as business partners (Ponomorjovs, 2007).

Other value concepts besides fair value are found in theory of corporate finance as well as in microeconomics. For the fair value measurements to be meaningful for financial analysts, consultants and other financial statement users, it is important to understand the concept of fair value in relation to other value concepts of corporate finance and those of microeconomics.

The purpose of this paper is to compare the fair value concept found in financial accounting to other economic value concepts.

The qualitative method of logical analysis forms the research methodology applied in this paper.

The paper relates to the study of financial accounting, which is a discipline of economics. The paper contributes to the cross-integration between financial accounting and other economic disciplines, namely, microeconomics and corporate finance.

2. Origins of the fair value concept in the US legal system

The history of fair value concept can be traced back to 1898. In 1898, in the United States Supreme Court Case "Smyth versus Ames" the US Supreme Court was evaluating whether railroad transportation rates of the Union Pacific Railroad Company are justified. The US Supreme Court argued that the railroad company may not fix its transportation rates with a view solely to its own interests, and ignore the rights of the public. According to the Court, the rights of the public would be ignored, if rates for the transportation of persons or property on a railroad were exacted without reference to the fair value of the property used for the public or of the services rendered.

"The basis of all calculations as to the reasonableness of rates to be charged by a corporation maintaining a highway under legislative sanction must be the fair value of the property being used by it for the convenience of the public, and in order to ascertain that value, the original cost of construction, the amount expended in permanent improvements, the amount and market value of its bonds and stock, the present as compared with the original cost of construction, the probable earning capacity of the property under particular rates prescribed by statute, and the sum required to meet operating expenses, are all matters for consideration, and are to be given such weight as maybe just and right in each case. What the company is entitled to ask is a fair return upon the value of that which it employs for the public convenience, and on the other hand, what the public is entitled to demand is that no more be exacted from it for the use of a public highway than the services rendered by it are reasonably worth," decided the US Supreme Court in 1898 (US Supreme Court, 1898). This reasoning indicated that fair value of the property shall be dependant not just on its historical cost, though on the current and future earning capacity of the property as well. The future earning capacity of the property shall be evaluated by the market and be reflected in the market value of property owner's stocks and bonds.

3. Fair value as a financial accounting concept in the beginning of the 21st century

US Financial Accounting Standards Board's Statement of financial accounting standards Nr. 157 "Fair Value Measurements" covers all assets and liabilities. In the US Financial Accounting Standards Board's Statement of financial accounting standards No. 157 "Fair Value Measurements" fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (FASB, 2006, p. 2).

An orderly transaction is a transaction that assumes exposure to the market for a period prior to the measurement date to allow for marketing activities that are usual and customary for transactions involving such assets or liabilities; it is not a forced transaction (for example, a forced liquidation or distress sale) (FASB, 2006, p. 3).

According to the International Financial Reporting Standards, fair value of an asset is the amount for which that asset could be exchanged between knowledgeable, willing parties in an arm's length transaction. This definition of an asset's fair value is provided in International accounting standard No. 16 "Property, Plant and Equipment," International accounting standard No. 38 "Intangible Assets," International accounting standard No. 39 "Financial Instruments: Recognition and Measurement," International accounting standard No. 40 "Investment Property" and International accounting standard No. 41 "Agriculture" (IASB, 1993, 1998, 1999, 2000, 2001). The same definition of an asset's fair value as in the International Financial Reporting standards is provided also in the Australian accounting standard AASB 116 "Property, Plant and Equipment" (Australian Accounting Standards Board, 2008, p. 11).

In 2001, the Fair Value Accounting Directive 2001/65/EC of the European Parliament and of the Council was adopted in the European Union. Upon adoption of the Fair Value Accounting Directive, the EU Fourth Council Directive 78/660/EEC on the annual accounts of certain types of companies was amended to maintain consistency between the International Accounting Standards and the EU Directives. The concept of fair value present in the International Accounting Standards as a result was introduced in the EU Fourth Council Directive 78/660/EEC on the annual accounts of certain types of companies.

The Annual Reports' Law of the Republic of Latvia regulates preparation of annual reports by non-financial business entities. It should also be mentioned, that additional financial reporting rules apply to public non-financial business corporations. In 2003, the Latvian legislator Saeima amended the Annual Reports' Law of the Republic of Latvia, in order to align the Latvian law with the requirements of the EU Fourth Council Directive 78/660/EEC on the annual accounts of certain types of companies. By amending the Annual Reports' Law of the Republic of Latvia in 2003, the fair value concept was first introduced in the accounting legislation that refers to non-public and non-financial business entities in Latvia.

In the Annual Reports' Law of the Republic of Latvia fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in a transaction between well informed, willing and financially unrelated market participants at the measurement date (Saeima of the Republic of Latvia, 2003).

4. Linguistic analysis of the English language term "fair value" as translated to Latvian

Upon introduction of fair value accounting in the Latvia, the English language term "fair" was translated to Latvian as "patiess." Alternatively, the Latvian term "patiess" stands for "true" in English.

According to English – Latvian dictionary, the alternative translations of English language term "fair" to Latvian are "godīgs" and "vidējs." "Godīgs" stands for "honest" in English; while "vidējs" means "average" in English.

From the linguistic analysis completed above, it can be concluded that terms "average value", "honest value" and "true value" are all synonyms to the term "fair value."

In the opinion of the author, the concept of fair value in fact corresponds to the honest and true value concept, since fair value of an item is the price at which this item is exchanged between fully informed buyer and a seller.

5. The financial accounting concept „active market" and its comparison to market categories defined in microeconomics

5.1. Market price of an item in an active market – the best measure of the item's fair value

According to the US Financial Accounting Standards Board's Statement of financial accounting standards No. 157 "Fair value measurements" publicly available market price of an item in an active market is the best measure of its fair value (FASB, p. 10).

The same view also is present in the International Financial Reporting Standards. The market price as determined in the active market is the best measure of intangible assets', financial instruments', and biological assets' fair values according to International accounting standard No. 38 "Intangible Assets," International accounting standard No. 39 "Financial Instruments: Recognition and Measurement," and International accounting standard No. 41 "Agriculture," respectively (IASB, 1998, 1999, 2001).

According to the Annual Reports' Law of the Republic of Latvia asset's market price in an active market is the best measure of its fair value. If no market price in active market is

available for financial assets and biological assets, fair values of these assets under Latvian legislation may be determined by applying recognized valuation models and methods (Saeima of the Republic of Latvia, 2003). The application of these valuation models and methods is aimed at determining the hypothetical market price of an asset in an active market. According to Latvian accounting standard No. 7 „Property, Plant and Equipment", property, plant and equipment may be valued at amortized cost on the balance sheet when no market value in an active market is available (Latvian Accounting Council, 2005).

5.2. The financial accounting concept „active market" as compared to microeconomic categories of markets

According to the International Financial Reporting Standards, an active market is a market in which all the following conditions exist:

- the items traded in the market are homogeneous;
- willing buyers and sellers can normally be found at any time; and
- prices are available to the public.

These three criteria which a market must meet in order to be regarded as an active market are provided for in International accounting standard No. 38 "Intangible Assets" as well as in International accounting standard No. 41 "Agriculture" (IASB, 1998, 2001).

Latvian author G.Kalnina supports the criteria which according to the International Financial Reporting Standards a market must meet, in order to be recognized as an active market (Kalnina, 2006).

In his microeconomics work, US author E.Mansfield distinguishes between four types of markets:

- monopoly,
- oligopoly,
- a market of monopolistic competition,
- a perfectly competitive market (Mansfield, 1994).

Perfect competition is defined by six conditions:

- there are no transaction costs associated with the sales transaction;
- equilibrium market price of the product is determined by the equilibrium of market demand and industry supply;
- none of the market participants – sellers and buyers – can affect the price of the traded product;
- perfect knowledge of the market conditions is available to both buyers and sellers;
- products sold are homogeneous;
- in the long-run, free entry and exit in the industry exists for producers (Jaunzems, 2008, pp. 264-266).

An oligopoly is characterized by a small number of sellers which take into account the likely responses that other market participants will have on their actions. A market is recognized as a monopoly when there is only one seller in the market (E. Mansfield, 1994, p. 296).

Monopolistic competition is a form of imperfect competition where many competing producers sell products that are differentiated from one another. A market of monopolistic competition has the following characteristics:

- there are many sellers in the market;
- the products sold are close substitutes, but not are completely homogenous from one seller to another;
- each seller has some amount of monopoly power, but is usually small because the products of other firms are very similar (Mansfield, 1994, p. 334).

In his microeconomics textbook, US author Mansfield (1994) demonstrates that market price of a given product may vary depending on what type of market (monopoly, oligopoly, a market of monopolistic competition or a perfectly competitive market) this product is being sold in.

In the opinion of US authors M.E. Barth and V.R. Landsman, only the market price of an item that is traded in a perfectly competitive market represents the fair value of this item (Barth, Landsman, 1995). The market prices of items traded in markets of neither monopoly, oligopoly, nor a market of monopolistic competition are indicators of the respective items' fair values.

The concept of active market found in financial accounting does not correspond to any of the market types which are defined in microeconomics. If the market price of an item determined in an active market is intended to represent the market price of this item in a perfectly competitive market, the criteria of an active market should be amended according to the criteria which a market must meet in order to be recognized as perfectly competitive. The conditions that must exist for the market to be recognized as active in this case shall include free entry and exit in the market for producers, absence of transaction costs associated with the sales transaction as well as the small size of each market participant in relation to the entire market. If the criteria that a market must meet for it to be recognized as active are aligned with the characteristics of a perfectly competitive market, it is important to note that market participants in an active market should have perfect information not just about market prices of the traded item; though on its quality and its best possible uses as well.

6. Comparison of the accounting concept "fair value" with value concepts of corporate finance

Famous US economist of the 20th century I.Fisher defined value of the property as the present worth of the income that this property is expected to generate in the future (Fisher, 1906, p. 202). In finance texts, this is commonly regarded as "intrinsic value" or "fundamental value" of the property, in other words, an asset.

US authors P. Casabona, V. Shoaf and R. Fonfender recommend the use of discounted cash flow model for the estimation of an item's fair value. As discounted cash flow model is applied, item's fair value estimate is supported by forecasts of future cash flows that are expected to arise from the item, timing as well uncertainty of these cash flows (Casabona, Shoaf, R. Fonfender, 2001). The use of discounted cash flow model in estimation of asset's fair value aligns the asset's fair value with its intrinsic value.

According to US author L.H. Summers market valuations of an asset, namely, stock, can differ substantially and persistently from the rational expectation of the present value of the cash flows that this stock will generate (Summers, 1986, p. 591). This discrepancy between market price of a stock and its fundamental value can be attributed to speculation.

According to International Valuation Standards market value is a concept distinct from market price (IVSC, 2005, pp. 87-88). Market price is the price at which one can transact, while market value is the true underlying value according to theoretical standards. If markets are inefficient and in disequilibrium, market prices are not reflective of true underlying market value. For market price to equal market value, the market must be informationally efficient and rational expectations must prevail. If a market is inefficient or in disequilibrium, the market price of an item, in the opinion of the author, does not represent the fair value of this item.

7. Conclusions

According to Annual Reports' Law of the Republic of Latvia asset's market value in an active market is the best measure of its fair value (Saeima of the Republic of Latvia, 2003).

According to both the International Financial Reporting Standards and Latvian author G.Kalniņa, active market is as a market where:

- homogenous goods and services are being traded,
- willing buyers and sellers can be found at any time,
- information about market prices is available to both buyers and sellers (IASB, 1998, 2001, Kalnina, 2006).

The concept of active market found in financial accounting does not correspond to any of the market types which are defined in microeconomics. In the opinion of US authors M.E. Barth and V.R. Landsman, the market price of an item that is traded in a perfectly competitive market represents the fair value of this item (Barth, Landsman, 1995). If the market price of an item determined in an active market is intended to represent the market price of this item in a perfectly competitive market, the criteria of an active market, however, should be amended according to the criteria which a market must meet in order to be recognized as perfectly competitive.

If a market is inefficient or in disequilibrium, the market price of an item, in the opinion of the author, does not represent the fair value of this item.

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THE REVIEW OF INCENTIVE FACTORS FOR eBANKING ADOPTION

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Abstract. *This research is conducted to analyse the main factors which have emerged in classical theories related to intention to adopt the eBanking services by customers. The study is based on several models that have been created for describing and predicting the reasons for users accepting or rejecting a piece of technology. These models identified three factors that would influence the adoption of Internet banking: attitude, subjective norms and perceived behavioural control. Finally, we realised a synthesis of these variables that will be used to create a model for adoption the eBanking by Romanian customers.*

Keywords: eBanking services; technology acceptance; attitude; subjective norms; perceived behavioural control.

JEL Code: G29.
REL Code: 5I.

1. Introduction

As a response and, at the same time, helped by technological developments, banks have attempted to build customer satisfaction by providing better products and services, especially for reducing the operating costs. Thus, the banking industry has been constantly innovating and with the advent of technological developments, particularly in the area of telecommunications and information technology, one of the latest innovation that took birth, and quite inevitably, has been the internet (Adapa et al., 2009, pp. 1-9).

Most of the business transactions were relying on web technologies, which offer responsive service toward customers (Rotchanakitumnuai, Speece, 2003). The use of the internet as a new alternative channel for the distribution of financial services has become a competitive necessity instead of just a way to achieve competitive advantage with the advent of globalization and fiercer competition (Flavián et al., 2004, pp. 366-384, Gan et al., 2004). All banks using the internet as an additional channel or a bank using only the internet as delivery channel are now on equal footing to offer their banking services on the internet and to compete for customers around the world (Karjaluoto et al., 2002, pp. 261-272).

The emergence of Internet Banking has stimulated many banks to emphasize on information technology strategies in order to stay competitive. Customers today are demanding much more from banking services. They want new levels of convenience and flexibility (Birch, Young, 1997, pp. 120-128) on top of powerful and easy to use financial management tools and products and services that traditional retail banking could not offer. Internet banking has allowed banks and financial institutions to provide these services by exploiting an extensive public network infrastructure (Ternullo, 1997, pp. 1-9).

Despite the many potential benefits, many essential problems will need to be addressed before Internet banking can become widely adopted. It is believed that, in the

future, Internet banking will recede in importance as a strategic application to become a competitive necessity that must be adopted by most if not all banking and financial institutions (Tan, Teo, 2000, pp. 22-38). Internet banking created value for bank in term of reducing cost, enhances customer service and increase long-term profit (Chatchawanwan et al., 2009). Unfortunately, customer adoption of Internet Banking still has not been in acceptable level among many countries, including Romania.

From the consumers' perspective, Internet banking provides a very convenient and effective approach to manage one's finances as it is easily accessible 24 hours a day, and seven days a week. Besides, the information is current (Tan, Teo, 2000, pp. 22-38). Benefits for the end users are numerous as well and include mainly convenience of the service (time saved and globally accessible service), lower cost of transaction and more frequent monitoring of accounts among others (Pikkarainen et al., 2004, pp. 224-235). However, it should also be noted that there are still customers who fear to make use of Internet banking, as they are concerned with security aspects of such a system.

For this reason, in this paper we are reviewing the main factors influencing the customer's decision to adopt Internet Banking services in order to create a model for e-banking adoption in Romania.

2. Methodology

User acceptance of technology has been studied repeatedly over the decades from various perspectives. The more important technology becomes as a part of our daily lives, the more companies expect their customers, suppliers and employees to be willing and able to use technology in various ways. It is understandable that at the same time research done in and around this subject has become more and more important (Vainio, 2006, pp. 1-80). Several models describing and predicting the reasons for users accepting or rejecting a piece of technology have been created and evolved during the years.

3. The synthesis of incentive factors for eBanking adoption

In general, a person's intention to adopt Internet banking is determined by three factors: *attitude*, which describes a person's perception towards Internet banking; *subjective norms*, which describe the social influence that may affect a person's intention to use Internet banking; *perceived behavioural control*, which describes the beliefs about having the necessary resources and opportunities to adopt Internet banking.

Intention to adopt Internet banking services, in return, is expected to affect the actual adoption of Internet banking. In this context, the intention to adopt Internet banking services is thus the dependent variable, while the independent variables comprise attitude, subjective norms and perceived behavioural control. So, the Figure 1 synthesise the incentive factors for eBanking adoption by customers.

3.1. Attitude

Attitude is defined as an individual's positive or negative feelings (evaluative affect) about performing target behaviour (Fishbein, Ajzen 1975). It is related to behavioural intention because people form intentions to perform behaviours toward which they have positive affect (Tan, Teo, 2000, pp. 22-38). Attitude toward behaviour is defined as a person's general feeling of favourableness or un-favourableness for that behaviour (Ajzen, Fishbein, 1980). The attitude-behavioural relationship is fundamental to Theory of Reasoned Action (TRA) and Technology of Acceptance Model (TAM).

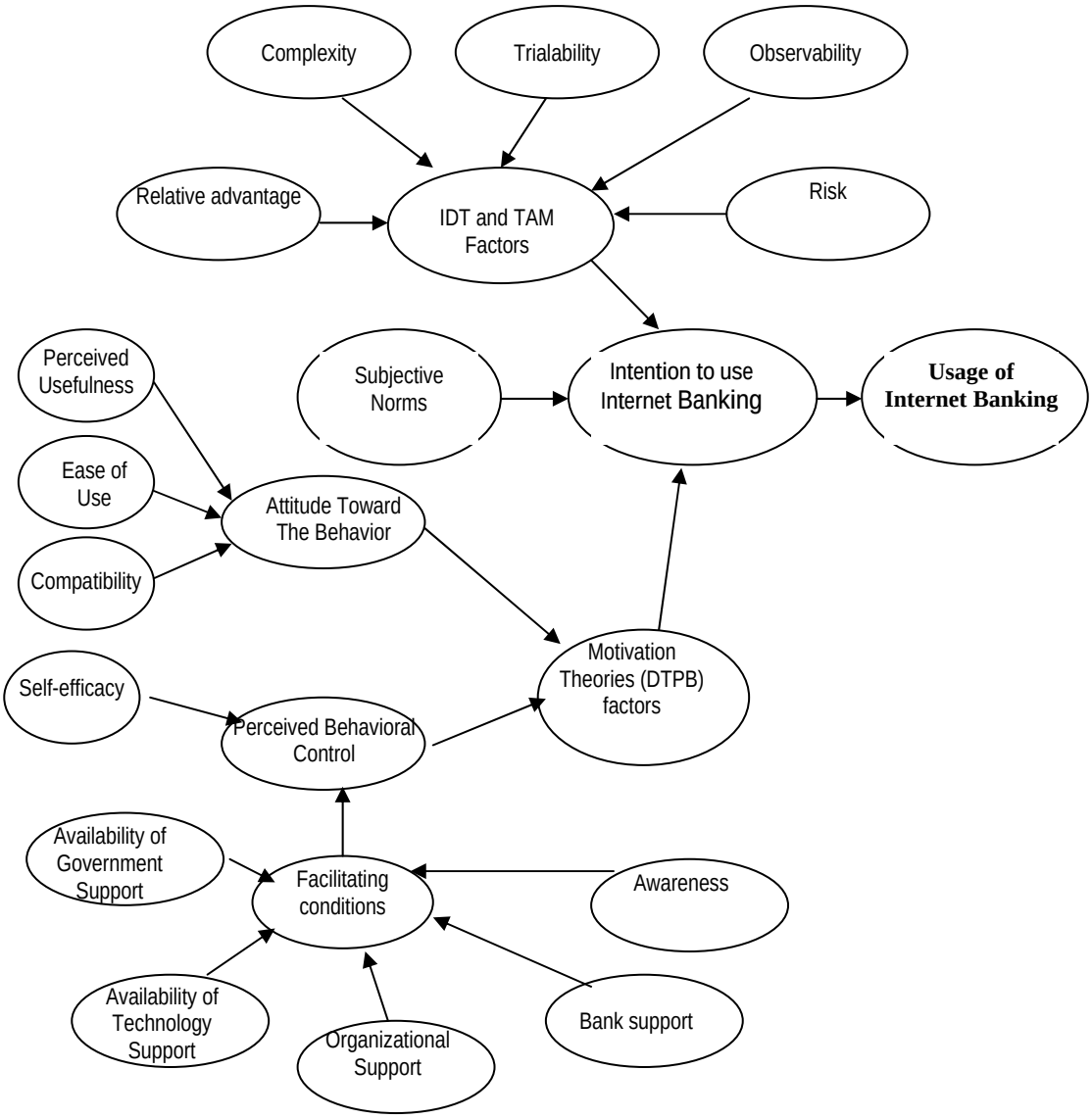

Figure 1. *The synthesis of incentive factors for eBanking adoption*

Taylor and Todd (1995) suggest that the different dimensions of attitudinal belief toward an innovation can be measured using the five perceived attributes (relative advantage, compatibility, complexity, trialability and observability) of an innovation. These attributes were originally proposed in the diffusion of innovations theory (Rogers, 1983). In accordance with TAM model, the attitude is generated by the perceive usefulness and perceive ease of use. So, we consider even those in our model.

The *Perceive Usefulness* was defined as "the degree to which a person believes that using a particular system would enhance his or hers job performance". "A system high in perceived usefulness, in turn, is one for which a user believes in the existence of a positive use-performance relationship".

If a user holds a belief that an application can enhance ones job performance, then that application is perceived to be useful. For a corporate user this means how useful does the user find the overall idea of using the application, and how much it is found to contribute to ones overall job performance and efficiency. Based on formerly conducted researches and their results, the more useful the system is seen, the more likely it is be that the system is also being used (Vainio, 2000, pp. 1-80). In accordance with that statement, the hypothesis is: "*Perceived Usefulness positively influences use of Internet Banking Services"*.

Perceive ease of use was described as "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989, pp. 982 - 1003). Perceived ease of use means the users perception of the level of easiness to use the system. The more difficult the system is to use or learn to use, the less likely it is the system is used as extensively as would be desirable, or that it will be started to use in general.

If an online service is found to be very difficult and cumbersome to use, the customer is very likely to do the transactions in more traditional. Thus, the hypothesis is: "*Perceived Ease of Use positively influences use of Internet Banking Service"*.

Relative advantage. Tornatzky and Klein (1982) found relative advantage to be an important factor in determining adoption of new innovations. In general, perceived relative advantage of an innovation is positively related to its rate of adoption (Rogers, 1983). Relative advantage refers to the degree to which an innovation provides benefits which supersede those of its precursor and many incorporate factors such us economic benefits, image, enhancement, convenience and satisfaction (Rogers, 1983).

Likewise, as Internet banking services allow customers to access their banking accounts from any location, at any time of the day, it provides tremendous advantage and convenience to users. It also gives customers greater control over managing their finances, as they are able to check their accounts easily. In view of the advantages that Internet banking services offer, it would thus be expected that individuals who perceive Internet banking as advantageous would also be likely to adopt the service (Tan, Teo, 2000, pp. 22-38). This leads to the hypothesis: "*The greater the perceived relative advantage of using Internet banking services, the more likely that Internet banking will be adopted"*.

Compatibility. An innovation is more likely to be adopted when it is compatible with individuals' job responsibilities and value system (Tornatzky, Klein, 1982, pp. 22-45). Internet banking has been viewed as a delivery channel that is compatible with the profile of the modern day banking customer, who is likely to be computer-literate and familiar with the Internet. Therefore, it is expected that the more the individual uses the Internet, and the more he or she perceives the Internet as compatible with his or her lifestyle, the more likely that the individual will adopt Internet banking (Tan, Teo, 2000, pp. 22-38).

Also, we consider that compatibility is in relation with *Previous experience* that refers to **"**prior experience with similar technology". The more a user has experience with similar things, the more confident one should feel about starting or doing something alike. This applies to computers, Internet services, and systems in general as well. The more a person has experience in Internet services or other banking systems in the Internet, the more likely he/she is to start using a system also at work in favour of the company (Vainio, 2006, pp. 1-80).

Thus, the hypotheses are: "*The greater the perceived compatibility of Internet banking with one's values, the more likely that Internet banking will be adopted", "The greater the experience with using the Internet, the more likely that Internet banking will be adopted" and "Previous experience positively with the technology influences use of Internet Banking Services"*.

In terms of compatibility with the needs of the potential adopters, Internet banking can be seen as an expeditious tool that allows customers to better manage their multiple accounts. As there are more financial products and services, it is expected that individuals who may have many financial accounts and who subscribe to many banking services will be more inclined to adopt Internet banking (Tan, Teo, 2000, pp. 22-38). This leads to the following hypothesis: "*The greater the use of banking products and services, the more likely that Internet banking will be adopted"*.

Complexity represents the degree to which an innovation is perceived to be difficult to understand, learn or operate (Rogers, 1983) or is perceived as relatively difficult to understand and use. Past research has indicated that an innovation with substantial complexity requires more technical skills and needs greater implementation and operational efforts to increase its

chances of adoption (Cooper, Zmud, 1990, pp. 123-139; Dickerson and Gentry, 1983, pp. 225-234).

Innovative technologies that are perceived to be easier to use and less complex have a higher possibility of acceptance and use by potential users (Baraghani, 2007). As the Internet is very user friendly with its "point and click" interface, it is likely that potential customers may feel that Internet banking services are less complex to use, and hence would be likely to use such services (Tan, Teo, 2000, pp. 22-38). This leads to the hypothesis: "*The lower the perceived complexity of using Internet banking, the more likely that Internet banking will be adopted"*.

Trialability refers to the degree to which an innovation may be experimented with on a limited basis (Baraghani, 2007). Rogers (1983) argues that potential adopters who are allowed to experiment with an innovation will feel more comfortable with the innovation and are more likely to adopt it. Thus, if customers are given the opportunity to try the innovation, certain fears of the unknown may be minimized. This is especially true when customers find that mistakes could be rectified, thus providing a predictable situation (Tan, Teo, 2000, pp. 22-38). This leads to the hypothesis: "*The greater the trialability of Internet banking, the more likely that Internet banking will be adopted"*.

Risk. Bauer (1960), Webster (1969), and Ostlund (1974) introduced risk as an additional dimension in diffusion and adoption. A common and widely recognized obstacle to electronic commerce adoption has been the lack of security and privacy over the Internet. This has led many to view Internet commerce as a risky undertaking.

Risk analysis has become a concern in itself that requires cooperation between two types of skills that have in common the risk: *financial banking skills related to risk* and *informatics skills related to risk*. There is sufficient the knowledge of bank transactions closely and financial levers as in traditional risk management, but it takes a joint team of financial analysts and information technology personnel to ensure security, integrity, privacy and non-repudiation transactions on new channels of banking services (Stroe et al., 2009).

Thus, it is expected that only individuals who perceive using Internet banking as a low risk undertaking would be inclined to adopt it (Tan, Teo, 2000, pp. 22-38). This leads to the hypothesis: "*The lower the perceived risk of using Internet banking, the more likely that Internet banking will be adopted"*. *Observability* refers to the degree to which the results of an innovation are visible to others (Baraghani, 2007).

3.2. Subjective norms

Subjective norms refer to "the person's perception that most people who are important to him/her think he/she should or should not perform the behaviour in question" (Ajzen, Fishbein, 1980). It is related to intention because people often act based on their perception of what others think they should do.

Subjective norms have been found to be more important prior to, or in the early stages of innovation implementation when users have limited direct experience from which to develop attitudes. In terms of a consumer-oriented service, the consumer-relevant groups around the individual may influence the individual's adoption. Chua (1980) suggests that the adopter's friends, family, and colleagues/peers are groups that will potentially influence the adoption (Tan, Teo, 2000, pp. 22-38).

Although there is no basis on which to predict how each of these groups will affect intentions to adopt Internet banking, it is nonetheless expected that the influence of these groups as a whole will be significantly related to the individual's intention to adopt Internet banking. Therefore, the following hypothesis warrants investigation. "*The beliefs associated with subjective norms are significantly related to an individual's intention to adopt Internet banking"*.

3.3. Perceived behavioural control

Perceived behavioural control refers to the factors that may impede the performance of the behaviour. This definition encompasses two components: *self-efficacy* defined as an individual's self-confidence in his or her ability to perform a behaviour (Bandura, 1982, pp. 122-147); *facilitating conditions* that reflects the availability of resources needed to engage in the behaviour (Triandis, 1979, pp. 195-259).

As we said, *self-efficacy* refers to the level of confidence a person has on oneself. Some people may be very confident about themselves just because that is their nature, where as others who are competent in something and should feel confident about doing it, actually don't. Previous experience, ability to learn and adopt new information, willingness to just try out new things probably influence individuals self-efficacy in many situations (Vainio, 2006, pp. 1-80).

Self-efficacy refers to the fact that "a person's estimate of his/her ability to cope with using a particular system". Self-efficacy predicts intentions to use a wide range of technologically advanced products (Hill et al., 1986, pp. 419-422). Thus, an individual confident in having the skills in using the computer and the Internet is more inclined to adopt Internet banking. This is because the individual is comfortable in using the innovation (Tan, Teo, 2000). This leads to the hypothesis: "*The greater the self-efficacy toward using Internet banking, the more likely that Internet banking will be adopted"* or "*the more the user trusts on his ability to use the system, the more likely it is that the person starts using it in his work*".

Facilitating conditions refers to the easy access of technological resources and infrastructure. This might includes access to the time, money and other specialised resources. Goh (1995) suggests that, as supporting technological infrastructures become easily and readily available, Internet commerce applications such as banking services will also become more feasible. As a result, Internet users would be expected to be more inclined to adopt Internet banking. Goh also suggests that the government can play an intervention and leadership role in the diffusion of innovation (Tan, Teo, 2000, pp. 22-38). Potential users, in turn would view new applications such as Internet banking services more favourably, and hence be more likely to use them. The above arguments lead to the following hypotheses: "*The greater the extent of perceived technological support for Internet banking, the more likely that Internet banking will be adopted";"The greater the extent of perceived government support for electronic commerce, the more likely that Internet banking will be adopted"*.

Organizational Support refers to "*the importance of support the customer receives from his own organization*". It is more or less common sense that the environment where we are influences us. Just as well everyone knows how much work environment can enhance or worsen ones job performance. Organizational regulations, guides, policies, organizational environment and availability of different kind of support by managers and colleagues together make the work environment as it is. The more support the organization provides to an employee to perform his or her job, the more likely that person is to succeed in the job even better. Using a computer or information system is not different from other tasks; perhaps in that case support from others in the organization is even more desirable (Vainio, 2006, pp. 1-80). So, the hypothesis is: "*The greater support the customer from his own organization, the more likely that Internet banking will be adopted"*.

Bank Support refers to "*the importance of support the customer receives from the vendor, in this case a bank*". Support by the bank can be thought as support from the software vendor, as it is software used to conduct banking transactions. Guidance, training, and providing help desk or contact persons for problematic situations or just for helping out the users are part of the role of any software or application provider. Although bank as an institution is different from a real traditional IT company, in this case customers expect to receive the first line help from the bank - very much in the same form as from a system or application vendor (Vainio, 2006, pp. 1-80). The hypothesis is: "*The more the bank is able to*

support and give guidance in using their Internet services, the more likely it is that the system is used".

Awareness refers to "*the level of awareness about the particular system and using it*". Presumably we all know how it is to start doing things that we are not familiar with, or we do not know too much about (Vainio, 2006, pp. 1-80). That means, the more information and knowledge we have about what we are doing or about to do with a specific piece of technology, the more likely it is that we are willing to use it. The hypothesis is: "*the more information and knowledge we have about Internet Banking, the more likely it is that we are willing to use it*".

4. Conclusions

In conclusion, in theory have been outlined many factors that stimulate the use of eBanking services. A deeper analysis related to the demographics and background of the users would be done in order to discover how they influence the corporate customers decision-making and use of eBanking services in Romania, taking into account that the customers can use these services for themselves or for their employer.

Acknowledgments

This work was supported by CNCSIS – UEFISCSU, project number: PNII – IDEI 1852/2008, contract number: 957/2009.

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CONTRACTUAL GOVERNANCE – AN OUTCOME OF THE RECENT FINANCIAL CRISIS

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Abstract. *Due to the information technology development, outsourcing has gained much importance, especially in the banking business where the creation of the shadow banking system through the outsourcing of risks on special-purpose entities has extended the corporate boundaries, increasing corporate risks. The global crisis revealed the fact that systemic risk has been underestimated and that market-correlation has been misunderstood. Under these circumstances, an appropriate contract design will reduce managers' misbehavior and align the manager and investor interests. Contractual governance is a necessary tool for reforming private arrangements not individually, but as parts of a network where over-regulation is counterproductive.*

Keywords: nexus of contracts; agency conflict; outsourcing; private equity funds; contractual governance.

JEL Codes: G21, G32, G34.
REL Codes: 11C, 11E, 11G.

1. Introduction

The recent financial crisis revealed new phenomena in the field of corporate finance – and the *shadow banking system* is only one example of the rapidly spread financial "innovations" (Dăianu, 2008, pp. 11-12). Hence, we face the risk of over-regulation and also, the risk of missing the opportunity to make this crisis be a "*creative* destruction" (Schumpeter, 1994, pp. 81) through less intrusive and efficient regulations.

This research paper introduces the concept of contractual governance as an important tool of preventing future financial crises in a moment when principles of corporate governance are being vituperated as important triggers of the crisis (primarily, remuneration schemes and risk management devices). In fact, the major cause of the crisis – the instability of markets – inducts the necessity of creating a stronger link between corporations and their *contractual environment*.

The remainder of the paper is organized as follows: Section 2 presents the relevant literature on the topic of the role of financial contracting within corporate governance, Section 3 discusses the main orientations of contractual governance in the aftermath of the current financial crisis and Section 4 concludes this paper.

2. The role of contracts in corporate finance – literature review

The specific literature highlights the importance of optimal contract – and related covenants – design, given the agency problems (conflicts for control) generated by the information asymmetry between managers and other stakeholders. Financial contracting is, as expertly and exhaustively reviewed in the article of Shleifer and Vishny (1997, pp. 737-783), a corporate governance mechanism.

Thus, scholars (Aghion, Bolton, 1992, pp. 473-475) document that financial contracts and their covenants have the role of establishing ex ante contingent control rights for the two parties in order to deter managers from ex post opportunistic behavior (such as value-reducing actions). They state that an efficient governance structure can be achieved by allocating

control contingent to one *prespecified signal* (thresholds regarding net worth, the interest coverage ratio, the leverage or the working capital) through the issuance of debt contracts with covenants. The instant a threshold is surpassed the covenant is violated and there will be a transfer of control rights that will enable creditors to intervene in management.

Even if contracts' covenants violations occur frequently (Dichev, Skinner, 2002, pp. 1091-1093) and rarely lead to payment default or bankruptcy (Gopalakrishnan, Parkash, 1995, pp. 13-14), one of the causes of Enron's default was the lack of covenants coordination in debt structure. However, many studies (Chava, Roberts, 2008, pp. 2085-2087) show that after a financial covenant violation, when creditors use the threat of accelerating the loan, capital investment declines sharply – demonstrating that creditors exert influence over investment policy even in the absence of payment default.

Given the contractual incompleteness and the necessary contract renegotiation, Garleanu and Zwiebel (2004, pp. 2-5) argue that the initial allocation of control rights is given by minimizing the expected renegotiation costs: when renegotiation is costly, minimizing renegotiation costs will imply a trade-off between the cost of giving debtholders rights that will sometimes restrict efficient project with the cost of giving shareholders rights that will sometimes allow inefficient projects.

The literature abounds in studies that empirically validate functioning mechanisms inside a firm in the aftermath of contractual relationships. The recent crisis had proven that these mechanisms could not be controlled and that their complexity is too high to be only individually understood. We need to broaden the approach under which we analyze financial contracting as a corporate governance device. We need to include the external component – the impact on markets, especially financial markets.

This study is consistent with Jensen and Meckling (1976, p. 9) who characterized the firm as a "nexus of contracts", since we further emphasize the necessity of ex-ante analysis of the whole contractual network in which corporations are embedded. Due to the information technology development, outsourcing has gained much importance, especially in the banking business – the creation of the shadow banking system through the outsourcing of risks on special-purpose entities –, and has extended the corporate boundaries, increasing the corporate risks. The global crisis revealed also the fact that systemic risk has been underestimated and that market-correlation has been misunderstood (together with the (in)stability of markets).

3. Contractual governance reform in the aftermath of the crisis

- *Contractual governance - a needful corporate governance tool*

The current financial crisis brought to view four new dimensions under which corporate governance is supposed to build an innovative (contractual) framework for efficient preventive devices. Firstly, corporate governance is extended to include not only the internal structures of companies, but also their *market-drivenness* (externally exhibited). Secondly, there is a need for *"soft law"* including appropriate regulations issued by experienced market-players. Then, we need to develop new principles of so-called *comparative corporate governance* to increase cross-border transparency. Finally, corporate governance is to be analyzed through an *interdisciplinary* approach covering issues of corporate finance, corporate law and corporate culture (Möslein, 2009, p. 6). Considering this context, contractual governance has the objective of providing as much freedom as possible for market-players and, at the same time, long-term stability of markets.

In the table below are synthesized the main orientations of contractual governance meant to eliminate/reduce the following risks:

Table 1

Risks and counteractions through contractual governance

Risks	Counteractions
Adverse effects of contractual bonuses (remuneration schemes-managerial compensation)	Ex-ante correlation with models of human behavior (social sciences-the interdisciplinary approach)
Systemic risk (considerably increased in the shadow banking system)	Focus on markets not only on individual contracts (networks and chain contracts-the case of outsourcing) Developing risk maps
The risk of over-regulation (very important in times of crisis)	The co-optation of market-players in formulating new regulations Self-control mechanisms

Source: author's conceptualization.

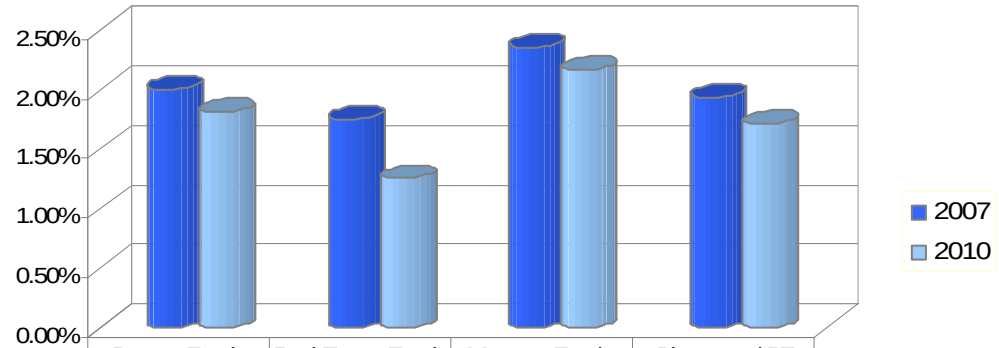
This approach intends to offer a comprehensive understanding and assessment of contractual risks so that firms to be able to control their exposures to certain financial instruments. Even if the crisis shown that managers could not choose to opt-out of the markets tendencies because their incentive contracts did not allow them to, redesigning contractual structures will not imply the anticipation of the moment when the prices bubble will break, but provide *correlation with markets* (although sometimes negative) and *alignment of incentives*.

- *Contractual governance in the shadow banking system*

It is well-documented that after the crisis starting point, private equity funds – the riskiest component of the shadow banking system, organized as limited partnerships(1) – were put under severe scrutiny by regulators in order to protect from their potential negative effects. In order to reduce these funds' managers' misbehavior, the compensation arrangement for fund managers has been redesigned to include a management fee for managing fund capital and a percentage of fund profits - the so-called "carry" (Harris, 2010, p. 268).

Moreover, an important measure taken in North America – were private equity funds first developed- after the crisis - was reducing management fees, as the recent report of Preqin(2) (Sample Pages, 2010, p. 2) shows. Hence, all four groups of funds selected (buyout funds, real estate funds, venture funds, distressed PE funds) have registered falls in the average management fee from those raising capital before the financial downturn took hold to those that have been raising capital recently. The figure below compares the mean fund management fee in 2007 for selected fund types with the mean fund management fee in 2010.

As we can notice, particularly striking is the 50 basis point decline in the average management fee for real estate funds, the sector where the crisis primarily originates.



	Buyout Funds (500-999mil.$)	Real Estate Funds (>1 bil.$)	Venture Funds (100-249 mil.$)	Distressed PE Funds (>1 bil.$)
2007	2.00%	1.75%	2.35%	1.93%
2010	1.81%	1.25%	2.16%	1.71%

Source: The 2010 Preqin Fund Terms Advisor, Sample Pages, pp. 2, www.preqin.com

Figure 1. *Mean management fees for selected fund types: 2007 vs. 2010*

Together with the reduction of management fees is necessary another *change of incentives*, related, this time, to the social component: for example, one possibility would be to require the pension plan of all such managers to be invested entirely in the shares of their own company. And if this would simply incentivize managers to short sell the equity of their own companies as a hedge, at least it would provide a warning to other potential investors and even to regulators (if the sell could be publicly observed).

4. Conclusions

The recent financial crisis revealed the necessity of reforming corporate governance, particularly through a novel device which is contractual governance. Therefore, we need to redesign contracts in order to mitigate agency conflicts, to incentivize for long-term stability and to control excessive exposures. Here, market-correlation and network-integration are the first measures to be taken in order to achieve an optimal contract structure. Further, the needed interdisciplinary approach enhances important connections to other sciences (primarily social sciences) that can offer relevant insight to efficient contractual governance. Because contracts are by nature incomplete and moral hazard, ubiquitous, market-players are invited to propose new forms of regulation. Their experience is priceless.

Even if the crisis shown that managers could not choose to opt-out of the markets tendencies because their incentive contracts did not allow them to, redesigning contractual structures will not imply the anticipation of the moment when the prices bubble will break, but provide correlation with markets and appropriate incentives/compensation arrangements.

Therefore, this contribution tries to explain why research into contractual governance is of crucial importance in that area of tension between exchange and cooperation in order to avoid future crises and to make the system of market economy more stable in the long run. More specifically, we see contracts and organizations as two forms of governance that not only provide functional alternatives, but indeed operate as closely interacting and interdependent governance mechanisms. In my opinion, this research approach offers a change of perspectives with new insights to useful innovations for legal scholarship in corporate finance.

Notes

(1) Limited partnerships (LPs) comprise at least one general partner, who takes on unlimited liability, and one or more limited partners, who would never lose more than their original initial investment in fulfilling the partnership's obligations; protects a partner's personal assets from being liquidated should the company become insolvent (www.investopedia.com)

(2) Preqin is an independent research firm focusing exclusively on alternative assets, headquartered in London with additional offices in New York and Singapore (www.preqin.com)

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SUSTAINABLE DEVELOPMENT OF ECONOMIC COMPETITIVENESS THROUGH INTELLECTUAL PROPERTY RECOVERY

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Abstract. *The research and development and innovation, which is a crucial strategic component for economic development and social progress, is closely related to this field. Thus, science, technology and innovation are areas that consistently generate breakthrough, ensuring sustainability of future development and economic competitiveness of Romania.*

Keywords: science; technology; innovation; sustainable development; economic competitiveness; technological progress; intellectual property; recovery.

1. Fundamental principles of protection of patents

Measures to encourage the development of medium and small enterprises sector should be one of the priorities of the Romanian Government. From this point of view, government policy to support the development of this sector is aimed at the economic potential of small and medium enterprises, thus contributing to sustainable economic growth, create jobs, increase exports of products with a high degree of processing and competitiveness throughout the economy.

In this context, a role they have incentives to promote innovation and technological progress and technology. Viewed from this perspective, intellectual property is a key element of economic development and a key prerequisite for implementing advanced technologies and achieving sustainable economic growth.

Recognition and use of intellectual property rights is based on implementation of research results. Securing intellectual property rights in a modern economy based on knowledge can help protect the creations of human intelligence and as offering a wide variety of products and services benefiting more and more consumers.

Intellectual property, regarded as the two components of its first industrial property and copyright and related rights on the otherside, is one of the basic mechanisms of economic development, social and cultural needs of the nation. In this context, it can appreciate that protection of intellectual property rights is of great importance, essence and purpose is to protect human intelligence product, while ensuring that the consumer may not use this product.

Research and development and innovation, which is a crucial strategic component for economic development and social progress, is closely related to this field. Thus, science, technology and innovation are areas that consistently generate breakthrough, ensuring sustainability of future development and economic competitiveness of Romania. However, innovation and technology transfer are solutions to economic problems and the permanent renewal of the necessary technology, by connecting the Romanian research market demands and pressures of a free expansion, in the context of globalization.

In the process of making intellectual property reform there will be taken into account social and economic problems, particularly the transfer of technology, electronic commerce, biotech and information technology. It also requires a shift in terms of technological exchanges and new patterns of economic management, able to include intellectual property

issues as part of economic cohesion between large and small and medium producers able to meet the new challenges.

In general terms, including intellectual property rights relating to:

- inventions in all fields of human activity;
- scientific discoveries;
- industrial designs;
- factory marks, trade and service and trade names and trade names;
- protection against unfair competition and all other rights related to intellectual activity in the industrial, scientific, literary and artistic;
- literary, artistic and scientific;
- interpretations and executions performer performers, phonograms and broadcasts.

In Romania, the following items of intellectual property are protected, as follows:

a. industrial property, which in turn includes: inventions, trademarks, industrial designs, new plant varieties, geographical indications, topographies of integrated circuits;

b. copyright and related rights. Copyright refers to literary works and scientific, musical and artistic works and architectural design which are recognized and protected as holders of related rights: performers for his own performance, producers of sound recordings for their own recordings and broadcasting organizations for their own programs.

Innovative and creative ideas are considered as "engine" of successful businesses. The ideas themselves do not yet have a commercial value if they are developed and implemented in products and services, enabling companies to obtain benefits as a result of innovative spirit. Industrial property, particularly patents, may play a decisive role for transforming innovative ideas and inventions into competitive products, enabling a significant increase in profit margin.

Also, a firm can use patents to get their income from licensing to other companies that have adequate capacity in their marketing. This not only saves companies money that, but it also produces a secure and stable income as a result of our employees inventions, without any marketing expenditure.

2. Valuation of intellectual property

If recovery technology transfer of research results, it is necessary that the technology transfer system to take into account the assessment of the component elements of intellectual property or technology product to be traded. The cost structure of traded technology and these elements must be contained for an accurate approximation of the market price.

Through the privatization program, the government transferred state assets to private investors. These usually requires privatizing state authority, as the seller. Pricing decisions are based on valuations, but not all assessments are rigorous. In tenders, the evaluation is left to the market.

In principle, evaluation and pricing of companies and assets are essential to the success of privatization. Some methods value assets and other results.

As evaluation is an estimate, prices of trading (market value) may vary. Typically, investors want low selling prices, reduced from sellers and assessments on the ground that they need investment funds.. Each investor's desire is to minimize financial risk.

In a competitive economy, intellectual property is the most important capital of a company because they are set by markets, generates profits, etc. to ensure international security.

Intellectual property is an original creation, derived from their creative ideas and which has or may have commercial value because of its contribution to achieving earnings for its legal owner. Intellectual property, as well as physical property is protected by law, namely by separate laws on patent, copyright, trade marks and geographical indications, etc.

Intellectual property includes, according to the World Intellectual Property Organization (WIPO), two broad categories of rights:

– Industrial Property:
- inventions, innovations, scientific discoveries;
- brands and services;
- industrial designs;
- geographical indications;
- computer programs.

– Copyright and related rights:
- scientific papers, technical and literary printed;
- dramatic works, musical and choreographic
- cinematographic and other audiovisual creation
- photographic works
- sound recordings
- representations or interpretations made by musicians , actors and singers;
- emisiunile radiodifuzate.
- Broadcasting.

Intellectual property, is an important component of national wealth. National Wealth = Assets + Intellectual property (as products acquired by the company) + Natural resources are used or usable in the process of material production.

Intellectual property includes industrial property basis (inventions, utility models, industrial designs, trademarks, and trade service, trade name, geographic indication, etc.) and copyrights.

Intellectual property by his value, can make a substantial contribution of capital. Profits from the operation of a firm intellectual property rights can contribute to increased revenue and/or decrease costs.

In general, the policy of development of innovation-oriented firms patents can lead to the application may cause: increasing sales, gaining market requires Carry, a dominant position among competitors or monopolistic market positions, maintaining a large number customers, provide a source of future business, generating complementary or additional business, developing new products and new markets, lower labor costs, reduce material costs, lower utility consumption, lower costs for recruitment and training of the workforce; elimination of upfront costs for products and technologies to avoid the design and development costs (for purchase of licenses); securing cheap and reliable funding sources, etc.

Mainly, it should be noted that intellectual property assets can not be evaluated with the same measure, presenting features, both because of how they were generated and implemented, and the resulting economic and financial results and in terms of social impact. For an accurate assessment there are required the research framework programs of development and exploitation of research results.

At the level of research and development a special interest is recorded in establishing evaluation procedures as a result of requests from two main directions:

o application of intellectual property assets of businesses from the technology transfer systems;

o rewarding of own employees in developing procedures in research incentives, namely remuneration of innovative creative work submitted.

The practice has been found difficult and useless to develop a generally applicable methodology, this involving a high risk of error generated by the diversity of economic and organizational structures at macroeconomic level.

Evaluation of intellectual property assets can be achieved through several processes, by analogy with material. In this sense, value can be determined by one of the following forms:

a. Evaluation based on the amount of costs incurred in generating intellectual property asset, which may add, on a case by case, a "profit" to offset the innovative effort expended. Of

course, the costs incurred in generating intellectual property asset can be added to a certain extent, and cost "social", respectively those costs related to attracting, selecting, training of our personnel's training and research.

b. Evaluation based on use value of the property, that is the amount negotiated and established during a transaction. These so-called market value based on supply and demand at a level that should be satisfactory to both parties involved (executor and acceptor). The difference between the two approaches is absolute in the sense that they characterize diametrically opposed economic systems.

As an interim solution, we propose to use the procedure a), for inclusion in the heritage and procedure b) any transaction.

Relevant factors in evaluating intellectual property assets can be identified in successive levels of economic activity, short term economic factors, the internal state of the economic, scientific and professional level of our personnel's research.

Therefore, determining the factors that affect intellectual property assets assessment includes two groups:

a. general factors – global trends that characterize the sphere of economics and, as a specific feature, the social.

b. specific factors that characterize the internal environment and external relational operator.

In this context and on behalf of the entity's private relationships influences of the technology transfer system, it can be made the claim that the procedure for evaluation of intellectual property assets depends on the economic sector in which the collected information, a large proportion being its specificity. Download in other areas can be done with caution and adjustments required.

In the research field and existing case law have resulted several important elements in assessing property assets:

I. The trends of economic integration in the European Union structures, the value of intellectual property assets can be reported to:

- Structure and organization of EC economic sector;
- Levels of labor productivity and financial profitability;
- Evolutionary trends in the structure and quality of products and technologies, including regulations and restrictions on development and environmental protection;
- In policy development and environmental protection;
- On development policies and specific investments.

II. The term knowledge of the economic environment concernes, mainly, the following aspects:

- National average yield/industry/economic-industrial sector of their fixed assets and turnover;
- Financial interest, economically and socially for a specific investment;
- Approximate average cost of acquisition and implementation of intellectual property assets;
- Development trends of the field of structural developments in the field of products and technologies;
- Restricted various constraints (legislation, socio-economic, environmental, etc.);
- Labor productivity, efficiency and rate of implementation of scientific research results.

III. Evaluation of the entity's internal technology transfer within the system comprises:

- Evaluate the key trends in financial indicators;
- Labor productivity sectors of production and scientific yield design staff;
- Pay staff for creativity and innovation (as distinct, if possible);

- Average costs for generating intellectual property assets, the personal contribution of research staff;
- Politics of attracting and training of research personnel, investments in the stimulation of creativity and innovation;
- Scientific prestige of the economic selor-brand the product, quality brand;
- Research potential and long-term prospects.

IV. The scientific and professional research staff

- Recognition of the potential scientific knowledge and research staff, individually and collectively;
- Commitment to scientific research and business culture, to the work currently performed;
- Integration in community and across the business entity, orientation ensemble support;
- Participation in national and international scientific life, the exchange of information;
- Ability to design applications in relation to existing equipment, ability in handling equipment.

It is noted that information needed to assess, as outlined above, make the data relevant intellectual property asset of which we can mention: the degree of novelty, the science and technology, ease of application, physical and moral life, the level of acceptability economic efficiency and so expected and will be addressed later.

In the relevant elements, the way the transfer of property is made, contract intellectual property is essential. On this line, considering the following aspects:

- How licensing (Exclusive, nonexclusive, limited, etc.);
- Pay the transfer mode (lump sum payments, royalties, equity, etc.);
- How to ensure the technical assistance (documentation completed the initial phase, the documentation provided along the way, right to use and support, without assistance, etc.).

To ensure fast and efficient calculation procedure it is necessary to select the correct evaluation criteria and easy quantification of value. Also, the parameters is performed using these precautions to reduce possible error, respectively of overrating or underrating the value of the proposed transaction.

Validation of research results will be able to provide key elements in determining the approach to evaluation and classification of the entity in the external environment for technology transfer within the system, such as market, competition, management, industry prospects and others etc. According to the most appropriate valuation method, the formulas used to achieve the most favorable evaluation and the best circumstances, and highlight risk factors that may influence the determination of reporting, we can estimate the extent to which the trader involved in the transfer of technology is intended to guide the intellectual property owned property.

On this line, we consider two main structures:

- maintaining heritage in order to assert their own benefit;
- selling the right to use, and production to another company in exchange for turning by itself.

If it is intended to maintain the heritage assessment, the method is based, according to the possibilities offered by recording arrangements, replenishment costs of achieving the intellectual property asset.

Where is considering a transaction by a foreign trader, it is important to establish a market value, usually based on the level of return obtained from exploitation of intellectual property asset in question. Proposed market value is based on their stated intention to serve the intentions (usually opposite) of both partners, even if no one can fully.

This method of evaluation is usually based on a scenario evaluation. Realism in achieving this scenario, as well as bring products to market realities and new technologies offer the opportunity to complete the transaction. A fair and realistic scenario is appropriate to include a range of information, estimated data, anticipating, on the one hand, the financial results can be obtained through the application/patent exploitation and, on the other hand, the costs of operation.

Categories of financial results expressed in monetary values that can be targeted scenario are mainly the following:

- Increase/profit generation;
- Increase turnover;
- Reduction of consumption of raw materials, components, technology or utilities;
- Reduce imports, especially for those difficult to ensure the desired conditions and relevant deadlines;
- Reducing pollution, protecting the environment and personnel, solving social problems and others.

Expenditure from the application/recovery could be related mainly to the following categories:

- Rights acquisition cost of application/use of the intellectual property asset;
- Cost of implementing technical assistance, feasibility studies, business plans, environmental studies, etc.;
- Investment costs;
- Costs related to commissioning, training of personnel;
- Cost of providing working capital and current payments necessary to conduct the processes of production/marketing;
- Costs related to promotion, distribution networks.

Both revenues and projected costs depend, to a great extent, on how the creator of intellectual property asset is involved in the implementation/his recovery. The quality of supply, as well as related services that transfer may be factors influencing the level of transaction and interests of the parties to complete.

Also, the type of contract proposed for the transfer of intellectual property asset may influence not only the value of the transaction, but the choice of assessment procedure. For example, in some cases, when aiming at a flat rate and an exclusive contract, the transaction comes from the reconstruction proposed development costs, plus social costs, a good profit and others.

3. Patrimonial ratings

For economic evaluations, calculation of production costs of intellectual property asset is specific to each enterprise in the system of innovation and technological transfer within the legal regulations, accounting methodology set out in the law relating to these issues. As a feature specified, these values may account for some overheads connected to the sharing of costs related to training, staff training and specialization. The condition that the costs to be admitted is that they (costs) are directly related to achieving good facility intellectual property. A formula that applies is given below:

$$VP = CT + (CAPC) + (P) \quad (1)$$

where:

VP represents the net asset value; CT is total cost of producing intellectual property provided the property and separated (CPAC), expenses related to insurance, to attract research and training –brackets indicate the option for retaining or not that amount in value formation; (P) is expected profit of the developer unit or property that may be included or not in total asset value.

4. Yield ratings

For assessments of the market for trading effective, the size of a few basic elements is required: turnover, profit, profitable life of the property assessed, the discount rate. These specific assessments are based on profitability, being commonly used in evaluations tangible assets. Among the many methods that apply efficiency ratings, we believe only two as being essential:

- Determining turnover growth of R & D results to users, which can add some effects recorded in activities (reduction of imports, material savings, etc.). In general, these effects can not be summed up, quantification being only an artifice specific assessment scenarios;
- Determining net profit obtainable from the application of research results.

In both cases, the values measured are brought to form a superprofits real profit which is added to the real unit profit in order to determine the actual capacity to produce profit. Option for one of two methods depends on the nature of the data obtained from the beneficiaries, and intentions related to the introduction of contractual clauses.

4.1. The method resulted in additional profit at the expense of turnover growth (through royalties)

Value is determined that a fee (usually at between 3 and 7%) applied to increase turnover and, where appropriate, material expenditure reductions, imports, etc. and to quantify the environmental impact.

The difficulty lies in assessing the proper method of those net economic effects, which can be evidenced by turnover:

$$PS = (3 \dots 7)\% \times CA \quad (2)$$

where:

PS is the extra profit, (3 ... 7)% royalty rate, generally accepted, CA turnover (gain evaluated).

4.2. The method of determining the annual net profit

If, unlike the previous version, the effects of economic evaluation data to the user (owned or have come into possession of the holder) are in the form of a series of net profits, one can adopt the following process stages:

1. determine the present value of net profit for the relevant period, in line with the life of the product or outcome of C & D activity;
2. reduce experimental research, including inventions, the present value;
3. distribution of profit is calculated during the lifetime of the product and is obtained the annual net economic effect (EENA).

The value is dependent on the overall profitability of the unit due to influences user intellectual values. Therefore EENA has be corrected accounting for average profitability, eliminating the elements of subjectivity.

Correct EENA the index value dependent on average profitability of the branch through the reconstitution of turnover (CA) as follows:

$$CA = 1/r \times 1/i \times v/k \times EENA \quad (3)$$

where:

r is the average profitability of the industrial sector;

i = 0.62, the gross profit recovery index; v = is a range of 3 to 10 years lifetime of the project; k = 1.5 - 3, a coefficient which varies proportionally to the speed of depreciation and the risk of action.

Other methods may be adopted, but its application is essential as the reference level.

Additional income gap (PS) due to the holder can be reconstructed using the relationship:

$$PS = (7)\% \times CA, \quad (4)$$

where: CA is determined by the previous relationship.

4.3. Evaluation of the good life of intellectual properties tits

On this parameter can record multiple points of view, among which the following may be considered as important:

- life time is equal to the duration of retention in service, regardless of applicator
- life (cost) is equal to the duration of operation where profitability is directly secured to a level above the average industry profitability
- life time is equal to the duration of service for which a profit is obtainded, regardless of amount.

To ensure good income expected by the holder of intellectual property, it is recommended to consider the lifetime cost. Generally, this period may be in conditions in Romania, between 3 and 10 years. 2-3 years in industrialized countries is a convenient time.

It is generally recommended that a non-inflationary discount rate, ranging between 9 and 15%, the average return being the result of fine tuning the interval sector in the economy.

As a formula, based on the best entries, is called by methods similar to assessment of tangible assets, the limited profitability

$$VPL = \sum_{1}^{n} \frac{Pn}{(1+a)^n} \quad (5)$$

where: n is the number of the current year of life for which the determination is made (in our case lifetime cost), Pn is the current that year's profit, and a is the rate of discount.

4.4. Risk factors influencing the determination of the amount calculated

Risk factors, as used in this paragraph are those which by a sudden change may lead to substantial modification of the expected financial flows values. The levels of risk factors can be grouped by the following criteria:

a) External macroeconomic trends

By integrating a new economic environment, reference can be modified by choice of those elements operational within the more evolved environment (eg for integration into the European Community). In this regard the following main references should be adopted:

- structure and organization of the economic system;
- levels of labor productivity and financial profitability;
- evolutionary trends in the structure and quality of products and technologies, including regulations and restrictions relating to environmental protection;
- development policies and specific investments.

b) external economic environment economic sector trends

This also applies to relations with the external environment immediately, that is the national economy branches and sectors of national economy, and local businesses. There can be mentioned as the risk-generating elements:

- changes in national average yield/industry/economic sector's industrial fixed assets and turnover;
- financial interest, economic and social sector investment;
- approximate average cost of acquisition and implementation of intellectual property assets;
- limiting restrictions (purchasing power of direct and indirect customers, legislation, environmental regulations, etc.);
- labour productivity (in the local industry), the yield rate and implementing scientific research results.

c) Internal state entity.

Major developments in the economic status of the purpose of the substantial changes to the wording used in the probabilistic case scenario followed by modernization can be classified into the following categories:

- Labour productivity for the manufacturing sectors and the sectors of design;
- Levels of remuneration;
- Average cost of raw materials and materials, utilities and technology;
- Prestige of scientific, economic, commercial entity, the product brand;
- Potential and long-term prospects.

Tests are valid for both the applicator trader and the holder (the creator) of the goods traded intellectual property.

d) Cyclical trends

These factors are related to the economic market, the development of this structure. They include: the degree of novelty, the science and technology, facilities, application of physical or moral life, the level of acceptability and expected economic efficiency, competition, etc.

These risk factors should be taken into account, either in the form of quantifiable factors insurance to the extent of the compatibility and simplicity possibilities. Implementation of Regulations of the Accounting Law no. 82/1991 (art. 47-51) specify the nature of intangibles and explains how their amortization is made. Intangible assets include all assets that have no physical form, but which contribute, directly and often decisively, the profit motive of business.

Number and name of intangible assets that can be evaluated separately, the balance-sheet and depreciated are very different, depending on the size and nature of economic units. For an intangible element to be included in the balance sheet, it must meet the following conditions must be accomplished:

- Accurate identification of the asset by a specific name;
- • the acquisition of intangible items, • the possibility of establishing a lifetime of intangible fixed • the possibility of transfer of ownership of intangible assets.

In the literature there are other criteria for the accounting of intangible assets:

- Purchase of intangible assets may be recorded in the balance sheet at their purchase cost;

• Enterprise products intangibles can be recorded in the balance sheet • periodic revaluation of intangible assets is permitted; • intangible assets can be depreciated over a period of time identified with that one during which the owner obtain a financial gain from their use; • any assessment is made by an independent professional expert.

Classifications of intangible assets and intellectual property is not uniform after some international standard, they vary from country to country (Western European countries, USA, Canada, Australia, Japan etc.).

In general, the distinction between intangible assets and intellectual property rights are only theoretical sources in order to highlight the formation of intangible property rights of companies.

In accounting practice, group balance sheet intangible assets, including intangible assets separate (set-up costs and expenses of research and development), intellectual property rights and goodwill (goodwill).

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MEASURING THE PRESSURE OF PRICES-INTEGER VALUES, OVER THE STOCK TREND

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Abstract. *Technical analysis methods for determining the share price quoted on the stock markets recorded dramatic developments in recent decades. It is a common fact that, in these methods, the other sciences immersion can be met. The desire to model the influence coming from behavioral economics, representing mostly qualitative variables, requires new approaches to quantify this influence.*

In this paper we present a method of technical analysis to determine the future price of a share after it drew some "integer" value with a significant impact on investor's decisions. The method is based on a comparison with the analysis of related physical movement by intersecting with the plane waves that separate two different environments.

Keywords: asset pricing; behavioral finance; qualitative variables; investors.

JEL Code: G12.

1. Introduction

Price movement is due to the phenomenon of mass action, in which most of the present actors on the capital market, trading in that title, choose a level crossing, called the psychological threshold, and accelerate the daily yields obtained or the return to a price below that level, declining at a calculable rate.

Investors' perception of certain values, for example EUR 10 for a share whose price has been in the last six months below that level, results in a change of environment through which a share price trend passes. Thus the passage of some value in a specific value is similar to the passage of light from an optical medium to another. Environmental change is due exclusively to the psychological factor of investors. If holders of more than half of the shares traded believe that the specific amount is a value that can not be overcome in the short term, then this value will act as a medium less dense and will return to trend that worked to the passing point (time). Investors assign greater importance to certain values due to:

1. There are values that stand out by reason of having integer values and many investors enter the analysis.
2. Want to flag profits.
3. They think that many market players will mark the profits and the price decreases.
4. Other factors driving this perception.

It is a certainty that we have many orders to trade related to these "reference integer values".

2. The trend seen as a wave motion

By comparison with the physical, price trend can be seen in an action similar to optical waves, sound, liquids and other types of wave motion. The only difference that makes us less receptive is that the speed of price adjustment is much smaller than the other waves, in particular the optical ones. Any behavior where the crossing point from one medium to another is as follows:

- One part is reflected (the share price trend and its meaning will change back to lower values than the reference value, with an angle of reflection equal to the angle of incidence).

- Some will be absorbed, the phenomenon of total reflection (stationary course will be around for a period of several days).

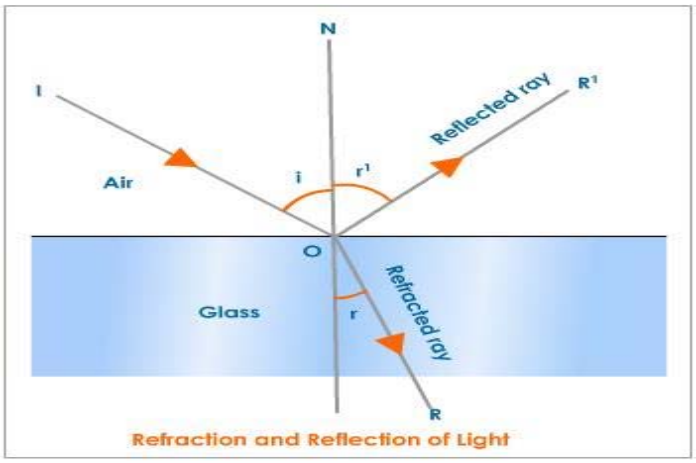
- Some will pass and the speed will be changed due to move into a new environment (the share price will continue its upward trend, but the angle of refraction will be different from the angle of incidence).

To facilitate comprehension of the concept and have a good starting point in this document, we believe that the trend action, after reaching the whole reference value, will be in one of the two situations:

- Will return to the environment they came, and a share price will fall by a certain speed.

- Will continue to rise, the price will increase by a calculable speed.

In the case of geometrical optics, some light is reflected and the other part changes its direction when entering in the second medium.



Source: http://www.physicstutorials.org

Figure 1. *A refractory light from passing to another optical medium*

where:

IO - is the radius of incidence, determined by the line which shows the direction of light;

A – is the point of incidence where the ray of light emanating from one medium encounters a new environment;

N – is normal, perpendicular line to the surface separation in the point of incidence;

OR- is refracted ray is the line that shows the direction of light that has passed the second environment;

I – is incidence angle is the angle between the refracted ray with the normal line;

R – is angle of refraction, the angle formed by the refracted ray with the normal line.

Case refraction wave passing from one medium to another (the deviation from the initial trajectory) is due to the change of the travel speed for the new medium, which is more dense or less dense compared to the original environment.

The laws of refraction are:

- Line of incidence, the refracted ray and normal line are in the same plane.

- Snell's Law: for two media data, the ratio of the sine of the angle of incidence and the angle of refraction is constant.

$\frac{\sin i}{\sin r} = m$, where m is the relative refractive index of the second to the first environment.

$m = \frac{n_2}{n_1}$, where n_1 and n_2 are the refractive index for the two environments.

For optics, refractive indices depend on the following factors:

- Nature of the environment;
- The color of incident light.

Moving waves behave differently when passing from one medium to another. Increase their speed of sound waves in a dense environment (speed of sound in water is greater than air), while decreasing its speed optical waves in a dense environment (speed of light in glass is smaller than in air).

Physically, refraction is a consequence of the Huygens-Fresnel principle; he states that a wave propagates little by little, the points on the wavefront are some secundary "sources" – the sum of the wave fronts of these sources will be the new wave front. Considering the boundary between the two environments as a place of forming secondary sources, we can see that the new wave front will travel at an angle different from the angle of incidence of the original wavefront.

We believe that the trend is manifested as a wave of actions to move with a similar optical activity. After comparison with natural waves, we have the following assumptions:

1. The line of incidence is calculated from the closing prices of the share taken in the last 10 days before point (day) of incidence.

2. The point of impact (breaking point) is when the share comes at a price equal to the "full value".

3. Incidence angle (i) is the angle between the incidence line with the normal.

4. n_1 is the refractive index of the environment, formed in the previous period to achieve "full value". We consider this index as equal to 1.

5. n_2 is the refractive index of the environment formed in the next period to achieve "full value" for higher prices than this share. This index differs from the one solely because of investor sentiment on the value that separates the two areas.

6. Normal line is the perpendicular line on the time axe to the point given by the reference value.

For example we will look at Ubisoft shares, the largest developer of games in Europe. The reference date is 08/11/2010 and "full value" under discussion is the price of 10 eur per share.

Source: http://www.google.com/finance

Figure 2. *The full 10 eur 2 Ubisoft Action*

The problem we propose to solve is the one when we know the angle of incidence and refractive index to determine future price of action under consideration. To do this, it is necessary to determine the angle of refraction (angle of reflection is equal to that of incidence), $r = \sin^{-1}(\frac{n_1}{n_2}\sin i)$, n_1 and n_2 are the refractive indices of the two averages. Since in our case the refractive index of the first medium is 1, the formula becomes $r = \sin^{-1}(\frac{1}{n_2}\sin i)$. If a high incidence angle ("ray" falls very obliquely), the phenomenon of total reflection can occur, practically the trend will not continue the upward trajectory. This occurs for $i > i_{critic}$, where $i_{critic} = \sin^{-1}(\frac{n_2}{n_1})$.

This means that we can be in one of the following situations:

1. if $n_2 > 1$, the angle of refraction will be lower than the incidence and prices will increase by a higher return than in the past 10 days.

2. if $n_2 < 1$, the angle of refraction will be greater:

a. if $i < i_{critic}$ prices will rise with a return lower than in the past 10 days.

b. if $i = i_{critic}$ we have the phenomenon of total reflection and the prices will hover around the "full value".

c. if $i > i_{critic}$ we have a phenomenon of reflection and prices fall, the trend changed its trajectory. The reflection angle will be equal to or very near to the angle of incidence.

In fact, if we determine the angle made by the trend with the normal line and we find the second environment index (index of refraction) determined by the perception of investors in any of the two cases (refraction or reflection) can lead to the line angle where the future prices can be found.

3. Determining the incidence line

Through the speed of a moving trend (we call it speed compared with the waves of motion), we understand the trajectory of prices given by the prices previous to the reference level. The proposed model, valid for short periods, considers closing prices obtained in a period of 10 trading days prior to the point of intersection with the new environment.

The relationship between profitability and the angle of incidence is as follows:

- If the daily profitability increases during this period, the incidence power increases, by reducing the angle of incidence.

- If the daily profitability decreases, the angle of incidence increases and, depending on the density of the second medium, there is a trend more likely to change their meaning.

- If constant, then we find the incidence line.

To determine the effect of refraction or reflection, we need to determine a line of incidence. This will be achieved using mcmmp to get a linear trend of the 10 daily closing prices.

Differently from mcmmp is that there is an additional condition: the line to pass through the point of incidence.

The function of incidence line is $\hat{y}$ (t) = a + b × t, where a and b are parameters of the line and t is the right time.

Using the method of least squares and taking into account the additional restriction we must solve the following system:

$$10a + b\sum_{t=1}^{10} t = \sum_{t=1}^{10} y(t) \quad (1)$$

$$a\sum_{t=1}^{10} t + b\sum_{t=1}^{10} t^2 = \sum_{t=1}^{10} t \times y(t) \quad (2)$$

$$a + b \times 10 = \text{integer value} \quad (3)$$

For our example (Ubisoft company, listed on the stock exchange in France), the analyzed data from 26 October 2010 to 8 November 2010 (10 trading sessions) are:

Table 1

Evolution of UBI in the period 10/26/2010 to 11/08/2010

day	26.10	27.10	28.10	29.10	01.11	02.11	03.11	04.11	05.11	08.11
t	1	2	3	4	5	6	7	8	9	10
Share price y(t)	8,937	8,969	9,244	9,349	9,244	9,297	9,289	9,331	9,739	10

Given that in this case "full value" is 10, equation 3 becomes:

$a+b\times10=10 \Leftrightarrow a=10(1-b)$

Using SPSS software, regression modeling of the function $\hat{y}$ (t) = 10(1-b)+ b×t we get: b=0.13 eur (Annex 1).

Angle of incidence i = arccotangent (b) = arccotangent (0,13) = 82.5 degrees.

Since this angle is very large, if n_2 is smaller than 1, then we have the phenomenon of reflection and the trend will change the sign resulted in a decrease in prices.

4. Determination of the refractive index n_2

This index takes values different from 1 only because of investors' expectations about the "integer value" analysis.

The formula proposed in this paper:

$n_2 = l \times k \times p$, where:

- l examines the evolution of prices once the action has previously reached the "integer value" and the time point of incidence.

$l = \frac{NZC}{NZS}$, where:

- NZC - represents the number of days with positive daily returns over the period.
- NZS - the number of days with negative daily returns over the period.
- k is the ratio of average trading volume over the last 10 days and average volume of trading days with positive returns in the period under review.

$K = \frac{VMT10}{VMTC}$,

where:

- $VMT10$ is the average trading volume over last 10 days;
- $VMTC$ is the average trading volume day with positive earnings in the period under review.

-p is the ratio of average trading price in the last 10 days and „integer value".

$p = \frac{PM10}{VI}$,

where:

- PM10 is the average trading price in the last 10 days.
- VI is the integer value in the analysis.

In our example, the period in question is April 26, 2010 to November 8, 2010. EUR 10 UBI was last touched on 26 April. Under these conditions the values of indicators are presented below.

Figure 3. *Evolution of Ubisoft action in a full cycle of value*

a) calculating the relative size of l:
The number of trading days during the period analyzed is 141.

NZC = 62 days
NZS = 79 days
l = 62/79 = 0.7848
b) calculating the relative size k
Volumes traded in the last 10 days are:

Table 2

Trading volume in the period 10/26/2010 to 11/08/2010

day	26.10	27.10	28.10	29.10	01.11	02.11	03.11	04.11	05.11	08.11
t	1	2	3	4	5	6	7	8	9	10
Trading volume per share(thousands of shares)	429	523	800	1024	477	300	723	594	1093	1153

Under these conditions VMT10 = 711,600 shares.

Average trading volume for the 62 days of positive returns VMT = 1,028,400 shares.

K = 711.6/1028.4 = 0.6919
c) calculating the relative size p
The average price of the last 10 days is eur 9.4 and eur 10 is the integer value.
P = 9.4/10 = 0.94

Refractive index of the second environment is:

$n_2 = l \times k \times p = 0.7848 \times 0.6919 \times 0.94 = 0.5104$

This value is much smaller than the refractive index of the first environment. This will cause a larger angle of refraction angle of incidence. If the angle of incidence is lower than the critical angle, we will record price declines immediately after reaching the "full value" of 10 eur.

5. Determining the angle of refraction or reflection

Angle of refraction is $r = \sin^{-1}(\frac{1}{n_2}\sin i)$. In our example n_2 is 0.5104 and I is 82.5 degrees. When the angle of refraction is sin r = 0.73/0.51 = 1.43. Because sin r is greater than 1, then that means we find the phenomenon of reflection.

This happens primarily because the incidence angle is 82.5 degrees higher than the critical angle for low density of the second environment, namely $i_{critic} = \sin^{-1}(\frac{n_2}{n_1}) =$ 30 degrees.

If the angle of incidence was below 30 degrees, taking into account that the refractive index of the second environment is lower than the one of the first environment, we still had an upward trend but with lower returns.

6. Future pricing using analyzed method

In these circumstances, the trend changes meaning with an angle equal to the angle of incidence. Thus, in the period ahead, the trend is downward with a negative return on average equal in modulus with the return on the incidence line.

Thus, we expect the next period after November 3, prices will fall by an average of 0.13 eur per day, so that today, December 10, we can easily notice this.

Figure 4. *Ubisoft price action in the first 4 trading days after November 8*

In the previous figure we see that after four days of trading on 12 November, the closing price was EUR 9.44.

Considering an average decrease of 0.13 eur per day, we expect the price on November 12 to be 10-0.13×4= 9.48 eur, very close to the actual value.

7. Conclusions

This technical analysis causes, with a high probability, share price developments for the coming days, from the time it is reached the “integer value”.

There are many attempts to overcome a certain value of price due to changes in investors’ perception, so that the density of the medium, given by values greater than or equal to that price, changes. It is possible that by successive changes, that are computable, to have a penetration of the current environment. These cases will be presented in subsequent communications.

This paper represents the beginning of the impact analysis of psychological factors on the price action. We chose these “integers” as they have visible influence on investors' perceptions.

This method is effective only in situations where, during the period analyzed, there are no special events (announcements related to turnover etc.).

Acknowledgments

This paper was co-financed by European Social Fund, the Human Resources Development Operational Program 2007-2013, the number POSDRU/89/1.5/S/59184 "Performance and excellence in postdoctoral research in economic sciences in Romania."

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Annex 1

Determining the impact parameter b of the line, using additional restriction regression using SPSS

All the derivatives will be calculated numerically.

Iteration	Residual SS	B
1	1,124128000	,080000000
1.1	,3847797333	,130933329
2	,3847797333	,130933329
2.1	,3847797333	,130933334

Run stopped after 4 model evaluations and 2 derivative evaluations.
Iterations have been stopped because the relative reduction between successive
residual sums of squares is at most SSCON = 1,000E-08

Nonlinear Regression Summary Statistics Dependent Variable VAR00001

Source	DF	Sum of Squares	Mean Square
Regression	1	872,92591	872,92591
Residual	9	,38478	,04275
Uncorrected Total	10	873,31069	
(Corrected Total)	9	,91733	

R squared = 1 - Residual SS/Corrected SS = ,58054

Parameter	Estimate	Asymptotic Std. Error	Asymptotic 95 % Confidence Interval Lower	Upper
B	,130933334	,012247922	,103226610	,158640057

ANALYZING THE LEVERAGE EFFECT BY MEANS OF REGRESSION FOR COMPANIES LISTED AT THE BUCHAREST STOCK EXCHANGE – BSE EXCHANGE SEGMENT

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Abstract*. The financial theory admits that levered firms record a value surplus compared to unlevered firms, at least because of the tax savings, related to interest. However, incurred debt, especially the long term debt, has a more consistent influence on performance, as stated by the Modigliani-Miller model. To this respect, the paper proposes the empirical testing of this model, using financial-accounting data of firms listed on the Romanian capital market. In particular, the statistical significance of the leverage effect will be analyzed, on a sample of companies listed on the Bucharest Stock Exchange, from the BSE exchange segment. This study is an extension of our previous research concerns.*

Keywords: leverage effect; financial lever; financial return; regression; capital market.

JEL Code: G32.
REL Code: 11E.

1. Introduction

The goal of this paper is to determine the existence of a causal connection between the capital structure of a firm, materialized in its debt, and the corporate performance. The starting point consists of the financial data which describes the financing sources. This data is collected from the most representative Romanian firms, particularly those whose shares are traded on the Romanian capital market – the BSE exchange segment of the Bucharest Stock Exchange.

Studying the dependency between the financial structure of an enterprise and its performance can be reduced to analyzing the degree of leverage impact, quantified by the financial lever, on shareholders' financial return on equity, according to the Modigliani-Miller model.

2. Literature review

The Modigliani & Miller model offers one of the most used formulas in financial theory. The relationship shows that the estimated financial return for a levered firm, from the class of risk k, is a linear function of the leverage ratio (Dragotă, 2006, p. 69):

$$R_{fin} = E(R)_k + [E(R)_k - R_{dob}] \times \frac{DAT}{CPR}$$

The notation system is as follows: R_{fin}= the financial return rate of the levered company, included in the class of risk k; $E(R)_k$= the expected return of the company from the class of risk k; R_{dob}= the interest rate, also called cost of debt; DAT= the company's long term debt; CPR= shareholders' equity.

The formula shows that a levered company can obtain a return on equity ratio superior to that of an unlevered company, at the same cost of capital. The term that is added to $E(R)_k$ is called leverage effect and may take three forms:

a) lever effect $\Leftrightarrow$ $E(R)_k > R_{dob}$;
b) boomerang effect $\Leftrightarrow$ $E(R)_k < R_{dob}$;
c) null effect $\Leftrightarrow$ $E(R)_k = R_{dob}$.

Thus, if the intrinsic return rate of the company surpasses the debt cost, then the shareholders' earning increases directly proportional to the degree of leverage. In the opposite case, when the interest rate is higher than the company's return on assets, supplemental leverage will enhance the negative performance and will lead to a reduction in the return of shareholders.

The Modigliani & Miller conclusions are radically amended under taxation conditions. Taking into consideration the tax on profit will favor levered companies to those unlevered, due to the deductible interest expenses of loans contracted (Modigliani, Miller, 1963, pp. 433-443). The deduction of interest from the operating profit will lead to the reduction of the tax amount and to the simultaneous completion of tax savings. Regarding the shareholders' wealth, the value of the levered company will be greater than the value of the unlevered company (Stancu, Ion, 2007, p. 688). The value difference is owed to tax savings. Their value, perpetually discounted, equal to $\tau \times DAT$, will add value to the unlevered company; τ represents the tax on profit rate. The following relationship is obtained:

$$V^L = V^U - DAT \times \tau$$

Identifying an optimal capital structure for the companies from the Romanian financial market represents a poorly addressed research topic. The majority of studies had been concerned with the influence factors of financing policy, proving to be useful both to investors and firms. The latter's management is interested in anticipating financing decisions' implications on the company's market value.

On the Romanian capital market, Dragotă (2006, p. 194) used a sample of companies listed during 1997-2003 on the Bucharest Stock Exchange (BSE). The two main findings of this study are the following (Dragotă, 2006, pp. 209-224):

- Romanian firms have a high degree of leverage, explained to a significant extent by the weight of interest free accounts payable;
- profitable enterprises contract less debt because they have got sufficient own resources to finance investment projects.

Using information drawn from the balance sheets and the results accounts of the companies listed on BSE and RASDAQ, during 2001-2004, Robu (2005) examined the correlation between the stock price and financial accounting data. According to the results obtained, the links between financial rates and stock-market performances for the companies from the sample are generally weak in intensity and can be quantified only by means of non-linear models (Robu, 2005).

Regarding our research, according to the results of an analysis carried out on a sample of firms from the capital market, the financing decision has little significant impact on corporate performance (Stănculescu, Brezeanu, 2009, p. 256).

3. Methodology for analysis

As a general rule, for the analyses contained in this paper we will apply the most commonly used relationship for determining shareholders' return, both between theoreticians and practitioners, namely ROE. Regarding the moment in time used as reference, the results from the year-end will be compared to the capital invested at the beginning of the year:

$$ROE = \frac{Net\ profit_1}{Shareholders'\ equity_0}$$

The financial structure of the firm can be described by the amount of debt, but also by means of financial leverage. The objective of the analysis is to detect the influence which leverage exerts on performance. In order to quantify leverage, a multitude of leverage ratios can be used (Brezeanu, 2007, p. 331), which divide contracted debts (or a part of them) by total liabilities (or by shareholders' equity). Of these we selected the financial lever, which is determined by dividing the long-term debt by the shareholders' equity:

$$L = \frac{Long-term\ debt}{Shareholders'\ equity}$$

The analysis of the relationship between the considered quantitative variables is based on the regression analysis; this is one of the most important econometric methods used in studying economic phenomena. The connection between a dependent (explained) variable Y and one or several other independent (explanatory) variables can be mathematically modeled by the following function: Y = f(X). Yet, any type of function cannot fully describe the link between economic phenomena. Therefore, a residual variable (error) must be added in the model, in order to take into consideration the observed values' deviations from the values estimated using the model. In addition, the direction and the intensity of the relationships between variables imply a particular importance.

In line with the approach from our previous study (Stănculescu, Brezeanu, 2009, p. 252), the analysis consists of carrying out two simple regressions:

I. for percentage values, where: x= financial lever and y= financial return;

II. for absolute values, where: x= long-term debt and y=profit.

4. Database construction

We used the *BSE site* to determine the group of companies listed at the BSE exchange segment (BSE, 2010, <www.bvb.ro>). Unlike the previous study, the database construction was this time facilitated by accessing Reuters Knowledge for Investment Banking. The RKIB resource was accessed from university campus (RKIB, 2010, <www.knowledge.reuters.com>).

Consistent with the purpose of the proposed analysis, respectively the testing of leverage effect on performance, the database contains the following financial-accounting data:

- long-term debt, equity and financial lever;
- net profit and financial return.

The delimitation used on these two coordinates serves the purpose of highlighting separately the regression variables: the independent variable and the dependent variable.

Long-term debt is synonymous with financial debt, long-term and medium-term debt, or with debt contracted on a greater than one year term. Dividing long-term debt and net profit by shareholders' equity we obtain the financial lever and the financial return. Thus, it can be observed that the role of equity is only to contribute to the definition of variables; it is not a factor in the regression.

Collected data is annual and has been taken from the balance sheets and the profit and loss accounts of companies whose shares are quoted at the first three tiers of the Bucharest Stock Exchange (BSE exchange segment). The time period under analysis is of 10 years, with the reference interval (2000-2009).

Unlike the previously undertaken analysis, we also included financial intermediation companies in the data sample and we had no longer resorted to any compromise solution for "filling in" null values, owing to the absence of data (Stănculescu, Brezeanu, 2009, pp. 253-254). We excluded only two companies, for which there is no data available: SC BURSA DE VALORI BUCUREŞTI S.A. (BVB) and FARMACEUTICA REMEDIA S.A. DEVA (RMAH).

To summarize, the database contains the cumulated recordings of values for the previously described variables, for companies listed at the first three tiers of the BSE, over a period of at least 9 years. The regression is performed on global data series, with values recorded for all the companies selected for the sample. It comprises of 71 companies and about 700 observations on: financial return, net profit, shareholders' equity, long-term debt and financial lever.

5. Regression analysis results

The results of the regression analysis with variables expressed in **percentage values** – financial lever and financial return, are the following:

Table 1

Regression in percentage values

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.471721868102	0.236991639382	1.99045784625	0.04693461419
LEVER	-0.00401708270191	0.00634048267205	-0.633561025191	0.526577288965
R-squared	0.000581400288135	Mean dependent var		0.459928676936
Adjusted R-squared	-0.00086703246507	S.D. dependent var		6.21232452303
S.E. of regression	6.21501708305	Akaike info criterion		6.49470000248
Sum squared resid	26652.2417664	Schwarz criterion		6.50782019311
Log likelihood	-2245.16620086	F-statistic		0.40139957264
Durbin-Watson stat	1.2177927554	Prob (F-statistic)		0.526577288965

On these results we have to specify the following essential observations:

- Std. Error: the standard error for financial lever is small;
- Prob.: the probability associated with t-Statistic for variable LEVER (financial lever) is great;
- R-squared indicates a very small proportion in which the financial return is explained by the financial lever;
- Sum squared residuals should have a small value, which is not true in this case;
- The Akaike and Schwartz criteria do not have high values (it is recommended for values to be as small);
- The D-W statistic is close to value 2, which indicates that residues are not autocorrelated;
- F-statistic has a high value, as recommended;
- Prob. (F-statistic) is greater than 5%; this implies that we cannot reject the null hypothesis which states that the regression parameter is equal to 0; consequently, *there is no real connection between financial return and financial leverage.*

The results of the regression analysis with variables expressed in absolute values – long-term debt and net profit, are as follows:

Table 2

Regression in absolute values

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	51.4878281962	8.3619145667	6.15742098123	1.25484431627e-09
LTD	0.011495727082	0.00278550557305	4.12698046386	4.12499141176e-05
R-squared	0.0240893884944	Mean dependent var		56.8697398844
Adjusted R-squared	0.0226750252894	S.D. dependent var		219.782222771
S.E. of regression	217.276151275	Akaike info criterion		13.6031013172
Sum squared resid	32574158.8797	Schwarz criterion		13.6162215078
Log likelihood	-4704.67305576	F-statistic		17.0319677491
Durbin-Watson stat	0.428129011671	Prob (F-statistic)		4.12499141176e-05

On these results we have to state the following essential comments:

- Std. Error: the standard error for long-term debt is small;
- Prob.: the probability associated with t-Statistic for variable LTD (long-term debt) is small;
- R-squared indicates a small proportion in which the net profit is explained by the long-term debt (2,41%);
- Sum squared residuals should have a small value, which is not true in this case;
- The Akaike and Schwartz criteria have high values (it is recommended for values to be as small);
- The D-W statistic is much smaller than value 2, which indicates that residues are autocorrelated;
- F-statistic has a high value, as recommended;
- Prob. (F-statistic) is smaller than 5%; this implies that we can reject the null hypothesis which states that the regression parameter is equal to 0; thus, *a real connection might exist between net profit and long-term debt*.

6. Conclusions

Both regressions analyzed the relationship between leverage and performance.

Like in the previous analysis (Stănculescu, Brezeanu, 2009), the results of this study are contradictory. The regression model tested for percentage values is not valid, yet the regression performed for absolute values might be validated, by further testing.

Therefore, we restate that the Modigliani-Miller model is not verified on data selected from companies listed on the Romanian capital market, and the defined leverage effect has no statistical significance. The financial lever does not influence shareholders' financial return on equity; this finding is opposite to the paradigm of finance.

By analyzing the relationship between the amount of financial debt (term debt) and net profit, we detected a small influence (of weak intensity) of leverage on corporate performance.

In conclusion, the manner in which companies listed at the Bucharest Stock Exchange – BSE exchange segment decide to finance their assets has little significant impact on performance (2,41%). This finding partially supports the conclusions of the study conducted by Robu (2005), as well as those of our previous study (Stănculescu, Brezeanu, 2009). We recommend further researching in this direction.

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CRISIS AS OPPORTUNITY.
CASE STUDY FIRMS ON AUTO INDUSTRY, CAEN 2932 MANUFACTURE OF OTHER PARTS AND ACCESSORIES FOR MOTOR VEHICLES

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Abstract. *The financial crisis had affected the economy as a whole with a significant effect on the long lasting goods which was most affected because of the large dependence of the financial sector and availability of the credit offers.*

Keywords: auto industry, financial crisis, strategy, opportunity.

JEL Codes: G01, G30, G39.
REL Code:11Z.

1. Introduction

Auto industry was heavily affected by the crisis because the low number of new cars registered. This trend which was particularly severe in all automotive production areas affected the activity in this market, but there were observed cases when the firms overcame all the problems. In order to check this hypothesis we have performed the aggregate financial analysis of all the firms on auto industry, CAEN 2932, taking into account 291 firms.

2. Overall analysis of the auto sector

The analysis of the aggregate balance sheet of the auto sector reveals the following (please refer to Table 1 for reference):

- Share capital of all firms has increased year on year (YoY) with %s of 40% to 85% in 2007, and them with % of 1% and 3% until 2009;

This trend is explained either by new firms entering the market, either by enlarging the activity of the existing ones:

- From 2005 to 2006 – 20 new firms had entered into the auto market, out of which the three most important are: RENAULT MECANIQUE ROUMANIE SRL – Arges (121.3 Million ron), MMM AUTOPARTS SRL – Cluj (16.5 Million ron) and REGE AUTOMOTIVE BRASOV SRL – Brasov (8.5 Million ron);
- from 2006 to 2007 – 24 new firms had entered into the auto market, out of which the two most important are VALEO SISTEME TERMICE SRL (4 Million ron) – Arges and MAPSA SRL – Cluj (3.3 Million ron);
- from 2007 to 2008 – 20 new firms had entered into the auto market, out of which the two most important are TRELLEBORG TIGVENI SRL – Arges (2.5 Million ron) and KENDRION BINDER MAGNETE SRL – Suceava (0.7 Million ron);
- from 2008 to 2009 – no entries and no get out from the auto market.

- Total Share Capital – even if in nominal terms it is observed a slow increase, in real terms it decreased by -5% in 2008 and with -3% in 2009. This is explained by the fact the results of the current financial year had a negative increase in real terms.

➢ Fixed assets represent the investments done by the firms for buildings, equipments, machines, new technological lines, etc. The investments has increased YoY with 22% in 2006, 45% in 2007 and 7% in 2008; then the investments are kept at the same level in nominal terms (-5% decrease in real terms). Please treat the data for fixed assets presented into the Financial Statements with care, because the revaluation to the fair value is not a compulsory request on Romanian legislation.

As an example we mention RENAULT MECANIQUE ROUMANIE SRL – Arges (the investments were done constantly YoY reaching 406.8 Million ron net investment in 2009) and COMPA SA – Sibiu with net investments reaching 355 Million ron in 2009.

Closely related with context of the nowadays economic crisis, the analysis of the receivables and liabilities reveals interesting results. It is desired that the firm cashes earlier the receivables and pays lately the suppliers.

➢ Receivables – increased YoY (except for 2008) with % of 19% to 44%.

The number of days for cashing-in the receivables equals 88 days (in 2005, 2006 and 2007) and 62 days in 2008, and then it increases to 72 days in 2009. Two months of cashing receivables is a lot, but it seems to be the specific of the auto industry (the cashing period is 10 to 30 days in FMCG industry).

➢ Payables increased both in nominal and real terms, reflecting either a good cash management (cash-in earlier than paying out) or a liquidity problem. The indicator debt on receivable is relatively stable at 2.5 – 2.6 since 2005 to 2009 (except for 2008, when it was 3.2). This seams to be an argument to sustaining the first hypothesis of good cash management. The management of debt must be done with care as the indicator Debt on Capital increases from 1.23 in 2006 to 1.54 in 2009.

➢ Large stocks means large costs, so it means inefficiency. So, a good stock management ensure the system efficiency. Stocks for auto industry are various: either raw materials, spare parts, finalised products, etc. The stocks increased in the same direction and trend as industry turnover, but with a slow moving trend. Stock turnover decreased from 51 days in 2005 to 42 days in 2009. We can conclude from this data that the auto industry is purchasing stock based on JIT (Just In Time) method, avoiding large stocks both for raw materials and for final products, adjusting the production based on market requirement.

Table 1

Aggregate balance Sheet for auto industry – trends 2005 -2009

* All amounts in million RON.						Evolution in real terms (%)			
B/S Indicators	2005	2006	2007	2008	2009	2006	2007	2008	2009
Total fixed assets	1.529	1.979	3.012	3.462	3.484	21,50	45.15	6.60	-4.71
Total current assets	1.103	1.435	2.176	2.315	2.668	22.05	44.68	-1.34	9.12
Inventory	342	414	649	831	826	13.61	49.47	18.74	-5.93
Cash and deposits	172	270	394	435	412	47.22	39.12	2.25	-10.22
Total receivables	589	750	1.133	1.049	1.430	19.58	44.03	-14.10	29.04
Total capital	1.114	1.523	2.283	2.340	2.396	28.25	43.00	-4.95	-3.05
Paid-in capital	462	691	1.340	1.460	1.596	40.39	84,91	1.04	3.54
Loss provisions	7	16	36	48	64	129.72	113.20	23.04	27.68
Total debt	1.511	1.875	2.869	3.390	3.691	16.45	45.95	9.55	3.13

The analysis of aggregate P&L for auto industry reflects the following (please refer to table 2 for data reference):

Table 2

Aggregate P&L for auto industry – trend evolution 2005 -2009

* All amounts in million RON.						Evolution in real terms (%)			
P&L indicators	2005	2006	2007	2008	2009	2006	2007	2008	2009
Annual turnover	2.452	3.111	4.766	6.177	7.215	19.05	46.13	20.19	10.61
Total revenues	2.757	3.411	5.442	7.065	7.998	16.12	52.16	20.36	7.22
Total expenses	2.627	3.240	5.370	7.096	7.929	15.74	58.08	22.52	5.81
Profit before tax	130	171	72	-32	69	23.61	-59.86	-141.83	302.54
Profit margin %	4.7	5	1.3	-0.5	0.9				
Net profit	103	131	30	-65	17	19.52	-78.18	-301.67	124.07

➢ Turnover increased in real terms YoY with 19%, 46%, 20% and 11% respectively (2008 vs. 2009). The increasing trend is kept, but the amounts are lower starting with 2008; it is also observed that the %s of turnover increase are positive and significant in amount.

Only by analysing these figures we can say the effects of financial crisis seams not to affect significantly the auto industry/ sector. The lowering amounts of the turnover increase can be analysed from two perspectives:

- Either the economic crises touches also this industry (2010 data will confirm or not this hypothesis).;

- Or the auto industry has past already of the increase period and reaches a steady state (a mature phase of the industry cycle).

In order to sustain the first hypothesis we have done a classification of the firms based on turnover evolution form one year to other and the results are presented in Figure 1 presented below. The classification refers to four main groups of firms:

- Group 1: firms with turnover increase over 10%;
- Group 2: firms with turnover increase between 0% and 10%;
- Group 3: firms with turnover increase between -10% and 0%;
- Group 4: firms with turnover increase lower than -10%.

Until 2008, it is observed that the positive evolution of the industry is confirmed by the increased number of the firms in Group 1 and maintenance of the number of the firms in the intermediary groups 2 and 3. on the contrary, in 2009 it is observed an increased number of the firms in Group 4 and a decrease in the number of firms in Group 1, while the number of the intermediary firms in Groups 2 & 3 is decreasing, which lead to the sustainability of the first hypothesis, that the industry is also affected by the economic crisis

Even if the number of firms with a positive increase of the turnover in 2009 vs. 2008 (Groups 1 and 2) is half than the number of firms with negative increase of the turnover (Groups 3 and 4), the results of the industry are highly positive. The value of the firms in the first 2 categories is highly above the value of the firms in Group 3 and 4. In 2009, the turnover for the first 8 firms in the industry reaches the amount of 4,200 M ron, while the turnover of the firms in Groups 3 and 4 reaches 1,472 M ron for 154 firms.

The Top 8 firms with highest turnover in 2009 are listed below::

1. Autoliv Romania SRL – Turnover = 1,164 M ron, with 2,476 employees;
2. Takata – Petri Romania – Turnover = 900 M ron, with 4,588 employees;

3. Auto Chassis International Romania SRL Turnover = 714 M ron, with 1,393 employees;
4. Euro Auto Plastic Systems SRL– Turnover = 357 M ron, with 700 employees;
5. Contitech Romania SRL– Turnover = 356 M ron, with 1,477 employees;
6. C.R.H. Romania SRL– Turnover = 280 M ron, with 492 employees;
7. Renault Mecanique Roumanie SRL– Turnover = 225 M ron, with 477 employees;
8. Takata – Petri Sibiu SRL– Turnover = 204 M ron, with 1,375 employees.

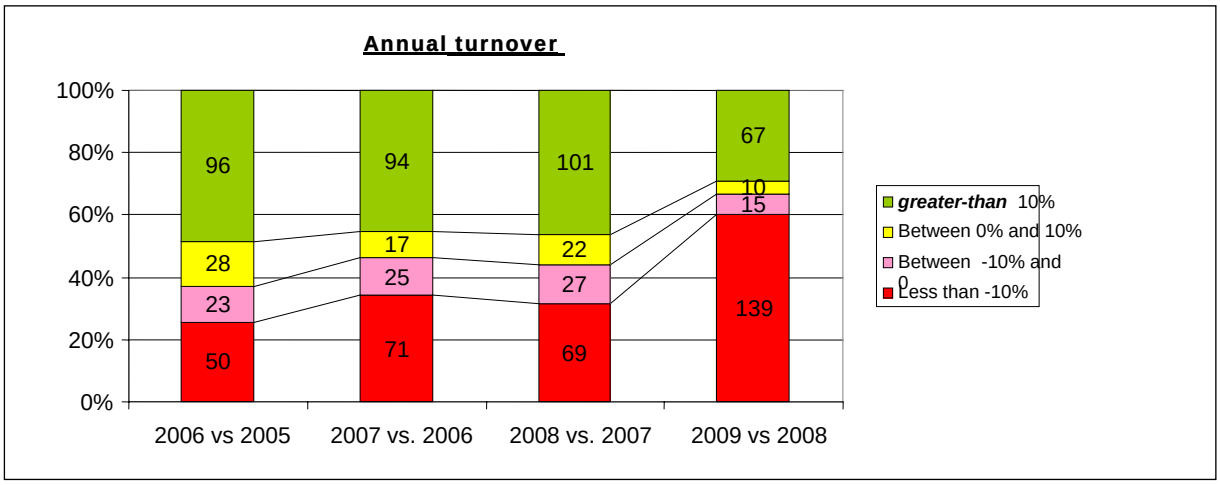

Figure 1. *YoY evolution of the firms' turnover by categories*

Even if the number of firms with a positive increase of the turnover is half in 2009 vs 2008 versus the number of firms with negative increase of the turnover (Groups 3 and 4), the aggregate results of the industry remain positive.

➢ The expenses increased also in the same trend as total revenues, but with different %s of growth:

- in 2006 vs. 2005 the expenses increased in the same way as revenues, 16% respectively. We can assume that the expenses are mainly direct productive ones and less expenses for administrative staff and support..

- In 2007 vs. 2006 the expenses increased with 58%, while revenues increased with 52%. A large increase in revenue equals large scale development of the industry, so the people, the processes and the systems adapts rapidly to the new needs. Only that this "on-going" adjustment leaves room for inefficiencies. A large scale development of a business generally leads to a decrease in the unit cost, so leading to lower aggregate costs (scale advantage). For the auto sector it is not observed a scale advantage leading to large volumes and lower costs.

- In 2008 vs. 2007 it is observed that the revenues increased with 205 and the expenses increased with ~ 23%. Even if one year passed for this industry the inefficiencies still persist. The gap between the increase in revenue and the increase in costs is only 3% in 2008 vs. 6% in 2007, but they still exists and the inefficiencies were not entirely eliminated.

- In 2009 vs. 2008 it is observed a decrease in the amount of increased revenue. Revenues increased only with 7%, while the expenses increased by 6%. It seems that the inefficiencies into the systems were reduced.

The explanation is available in Table 3 in the evolution of the number of employees in the industry. In 2007 the number of employees increases with 20% in order to sustain the need of increased production in response to the market needs. In 2008 the number of employees increases with 3% , following the increasing trend of last year. The firms in Group 3 and 4 (154 firms) counted 75% of the employees of the sector in 2005, while in 2009 they counted

only ~40%. The firm „Rolem Srl Brasov" lost 994 employees in 2009, reducing the number of personnel with more than half (-53%).

The top 8 firms based on turnover counted only 8% of the employees sector in 2005 while in 2009 they reached 43%.

In 2009 the number of emploees decreases with 9%, either triggered by the need to adjust to market lower requirements, or other firms decreased overall volume as result of crisis or they wanted to eliminate the inefficiencies within the system.

- Gross profit of the industry is small in amount (both absolute and relative – between 1% and 5%). In order to maintain efficiency the expenses must be controlled very tight, the inefficiencies generated by processes, systems and people must be closely controlled. It appears that this rule was not complied with in this sector, because a large increase in revenues in 2007 and 2008 lead to lower gross margin (GM is negative in 2008 at -0.5%)

Gross margin is 1% positive in 2009, mostry driven by the lower expenses triggered by lower number of employees.

Table 3

Number of employees evolution since 2005 to 2009

Year	2005	2006	2007	2008	2009	Evolution (%)			
						2006	2007	2008	2009
Employees	26,973	27,283	32,407	33,275	30,210	1.15	18.78	2.68	9.21

2. Analysis of the auto industry by county

Firms from the auto sector are spread around the whole country, in 36 counties. There are presented 12 counties that concentrate most of the activity of the auto industry (please refer to table 4 below for reference).

- Arges County holds ~ 30% from total turnover of the auto industry and employs ~ 155 of the industry personnel. The most important firms from Arges county are no 3, 4 and 7 from Top 8 firms mentioned above (Auto Chassis International Romania SRL, Euro Auto Plastic Systems SRL, Renauls Mecanique Roumanie SRL).
- Brasov County increases in time the share of turnover in the industry from 9% in 2005 to 17% in 2009. It is interesting to mention that the number of employyes decreases its share in the industry from 19% in 2005 to ~13% in 2009. In this county the increase in turnover was followed by a slow increase in the number of employees, diminishing the loss/ inefficiencies in the sector. Only in 2009 Brasov county had a positive gross profit of +0.6%, slowly increasing YoY from -3%.
- Sibiu County holds 11% to 16% of the total turnover of the industry and 155 of the employees (eg:TAKATA-PETRI SIBIU SRL, Turnover = 204 Million ron and 1,375 employees in 2009; FAURECIA SEATING TALMACIU SRL, Turnover = 154 Million ron and 753 employees in 2009);
- Arad County had an interesting evolution in the industry, increasing its share from 0.1% to 13% and hiring over 15% of the industry employees. TAKATA-PETRI ROMANIA SRL enters into the market in 2007 and has a Tunover of = 900 Million ron and 4,588 employees in 2009.

Table 4

Turnover and no of employees evolution by county

County	Share of Turnover (%)					Number of employees				
	Year 2005	Year 2006	Year 2007	Year 2008	Year 2009	Year 2005	Year 2006	Year 2007	Year 2008	Year 2009
1. Arad	0.12	0.16	15.00	13.78	12.80	15	35	3595	4489	4691
2. Argeş	28.99	30.95	26.06	26.26	28.11	3879	4127	4842	5083	4914
3. Bihor	5.06	4.72	2.63	1.87	1.55	1068	991	903	881	732
4.Bistriţa Năsăud	2.50	2.77	2.63	2.21	1.04	910	1055	1460	1535	1302
5. Braşov	9.35	10.03	10.74	14.93	17.34	5113	5060	4901	4744	4037
6. Bucureşti	3.87	3.49	3.06	3.86	5.08	653	719	953	1257	1129
7.Hunedoara	1.70	1.47	0.82	0.77	1.04	1333	1273	1201	1181	635
8. Iaşi	6.46	4.83	2.58	1.93	1.56	1330	1247	1042	818	534
9. Olt	3.90	3.85	2.38	1.78	1.26	2227	2105	1751	1335	1027
10. Prahova	2.60	2.32	1.43	2.01	1.65	1812	1764	1612	1516	1202
11. Sibiu	15.88	16.24	14.64	13.33	11.06	3428	4032	4572	4807	4621
12. Timiş	5.88	6.57	8.22	8.53	10.,88	1234	1443	2188	2307	2757
13-36. Alte judeţe	13.7	12.6	9.8	8.7	6.6	4241	3696	1126	3674	2980
Total	100.00	100.00	100.00	100.00	100.00	26,973	27,283	32,407	33,275	30,210

➢ It is also observed that 24 counties that hold 7% to 9% of the turnover in 2008 and 2009 hire 10% to 11% of the industry employees. The gap is observed in Alba, Buzau, Cluj counties. For example, STAR TRANSMISSION CUGIR SRL – Alba – ORAS CUGIR hires a large number of employees in 2005 and 2006 and reaches a gross profit margin of 7% and 11% respectively, higher than the industry average at 3-5%. But in 2009 the gross profit margin is -19%, very low compared with the industry average, because of the contraction of the sale and maintenance of the number of employees.

3. Analysis of the auto industry in Arges county.

A special analysis id dedicated to Arges county because it holds ~ 30% of the industry turnover (Table 4) and hires 14% - 16% from total employees.

52 firms from auto industry are located in Arges County (out of which five without activity in 2009) grouped in 3: Group 1: 28 firms with less than 50 employees count for 4-5% of the county turnover; Group 2: 10 firms with 51 to 201 employees count for 25-30% from county turnover and Group 3: 7 firms with over 201 employees count for 68% of turnover.

Industry turnover has increased YoY with 19%, 46%, 20% and 11% (from 2005 to 2009). Arges county had stable increases of 27% (higher than the industry in 2006 vs. 2005), of 23% (lower than the industry in 2007 vs. 2006) and then increases of 21% and 18%. So the county increases ~ 20% YoY, being different compared with the industry.

On the other hand, the number of employees of the industry increases with 1%, 19%, 3% and -9% from 2005 to 2009. In Arges the number of employees increases with 6%, 17%, 5% and -3%, registering 3% to 5% gap versus the industry.

With regard of the cost control, it is also observed in Arges a large increase of the expenses compared with the revenue in 2007 and 2008, but with only 2.5% compared with 6% of the industry in 2007 and with 3.5% compared with 2% of the industry in 2008. In 2009

the increase of the expenses is lower than the increase in revenue mainly driven by the decrease in the number of employees with 3% (please refer to Table 4, Arges row).

Gross profit for the firms in Arges county stayed positive on the whole period analysed, but the evolution was different than the industry (please refer to Figure 2):

- in 2006 in Arges the gross margin decreases from 8% to 5%, while the gross margin of the industry slowly increases from 4.7% to 5%.
- In 2007 – the industry drops from 5% to 1.3%, while Argesul drops only 2% to 3%.
- In 2008 – Arges stays positive at 1% while the industry is -0.5%, both dropping 2%.
- In 2009 the industry increases to 0.9%, while Arges increases to 4%.

The trend is influenced by the 7 firms from the Group 3 category.

Table 5

Aggregate P&L auto industry in Arges county – from 2005 to 2009

* All amounts in million RON						Real terms variances (%)			
Argeş P&L	2005	2006	2007	2008	2009	2006	2007	2008	2009
Annual turnover	711	963	1,242	1,622	2,028	27.12	23.03	21.09	18.42
Total revenues	769	1,042	1,354	1,750	2,088	27.12	23.96	19.86	12.98
Total expenses	707	986	1,307	1,739	2,011	30.80	26.45	23.32	9.52
Profit before tax	62	56	47	11	77	-15.17	-20.18	-77.21	537.61
Net Profit	54	46	35	6	60	-20.03	-27.95	-84.67	890.01

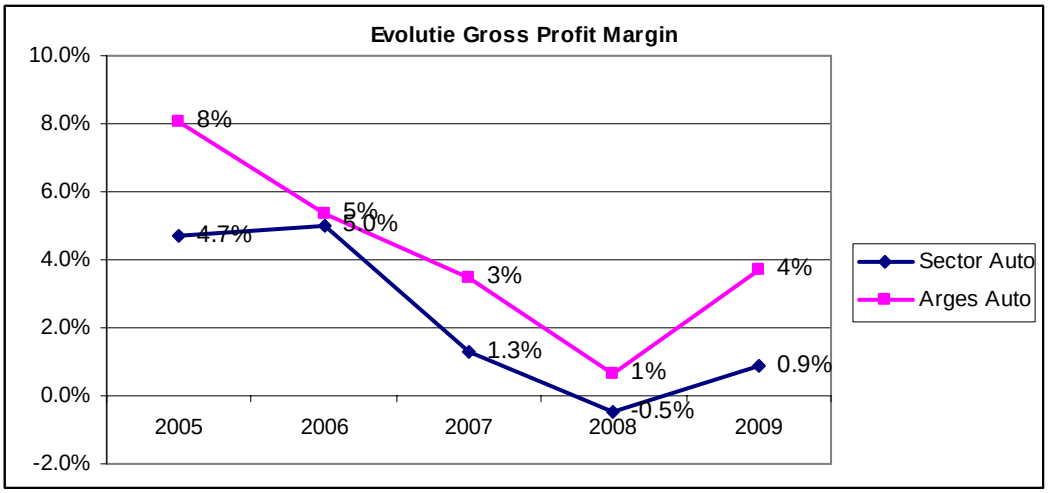

Figure 2. *Gross profit margin evolution – Arges county vs. Auto Industry – from 2005 to 2009*

The Balance Sheet analysis for the firms in Arges county reveals the following:

- Infrastructure Investments were done between 2006 and 2007 (from 478 million ron la 845 million ron), increasing in this way the share of Arges county in total industry from 24% to 28%.
- Stocks increased in absolute amounts but they decreased as share in the industry from 21% to 13% which leads to the conclusion of good stock management.
- Cash availability decreases a lot in 2009 and represent only 11% of the total industry. This represent a signal on the way cash management is done in Arges.
- Both receivables and payables increased in 2009 vs. 2008. The receivables increased with 47% and payables with 9.5%. These signals the way the cash management is run. On the other hand, the receivables stays around 26% as share in the industry, while the

liabilities decreased from 22% to 18%. The firms decided to pay first the suppliers while cashing receivables lately. This can become a real problem considering the context of prolonged economic crisis.

➢ The provisions are high in 2008, reaching 27% from the industry and then going back to 11% in 2009. Risks of all kind should be analysed and evaluated with care. Even if the amounts are not significant, they were noticed because of the large variantion observed YoY.

Conclusions

Considering the context of economic crisis, we conclude that the firms from the auto industry had the following advantages:

- Emerging market operations which were less impacted by the automobile sector crisis;
- Presence in a niche sector as a supplier to tier 1 clients (therefore in the second level of the chain)
- Increased flexibility of the cost structure

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TESTING THE HYPOTHESIS OF MARTINGALE ON INTRADAY DATA: THE CASE OF BET INDEX

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Abstract. *The hypothesis of martingale on Romanian capital market is tested based on the intraday data of the BET index for the time period November 2, 2009 through April 30, 2010. Investigation of this hypothesis is realized through two recent test, the Automatic Variance Ratio test of Kim (2009) and the Generalized Spectral test of Escanciano and Velasco (2006). The first has the best performance in the presence of linear dependencies, while the high performance of the second is in the presence of nonlinear dependencies. The robustness of the two tests in the presence of heteroskedasticity is given by using a wild boostrap methodology. The empirical results reject the hypothesis of martingale especially due to the presence of nonlinear dependencies in the intraday data, indicating the existence of a high potential of predictability.*

Keywords: informational efficiency; martingale; intraday data; wild boostrap.

JEL Codes: G14, C12.
REL Codes: 10G, 11B.

1. Introduction

According to Fama (1970), a market in which prices always fully reflect available information is called efficient. In this situation, the price of financial assets is in equilibrium against this available information and will fluctuate only in response to the arrival on the market of new information which, by their nature are random, printing thus a random walk behavior to stock prices. On such a market it is impossible for an investor to predict the stock price and to obtain systematic profits because the best prediction based on historical prices is the present price, and price changes are independent and identically distributed (i.i.d.). This is the essence of the weak form of informational efficiency which implies in a restrictive approach a random walk model.

Let I_t be the level of index at time *t* and define $X_t \equiv \ln(I_t)$. The random walk model can be stated as:

$$X_t = \mu + X_{t-1} + \varepsilon_t ,$$

where the drift μ should be insignificantly different from zero, X_t should be difference-stationary and ε_t should be i.i.d.. It is possible to relax the assumption of i.i.d. returns in the context of weak form efficiency, considering that the returns follow a martingale model, for which:

$$E\left[X_{t+1} \middle| \{X_t, X_{t-1}, \ldots\}\right] = X_t$$

or, equivalently for returns,

$$E\left[y_{t+1} = X_{t+1} - X_t \middle| \{X_t, X_{t-1}, \ldots\}\right] = 0 .$$

Such a random walk version does not necessarily imply that the returns to be i.i.d. and allows taking into consideration the heteroskedastic behavior which characterizes the financial series.

In fact, the presence of dependencies in the conditional variance does not help us to improve forecasts about C_{t+1}. Regardless of the version investigated, the first necessary but not sufficient condition of the random walk hypothesis is for X_t to have a unit root. The second condition for acceptance the hypothesis of martingale implies the absence of linear and nonlinear dependencies that can be exploited in forecasting.

The originality of this research is given by several aspects. First, is the first study which aims to test the hypothesis of martingale on intraday values of the BET index, the period under study being November 2009 – April 2010. The second element of originality consists in the usage of two recent test, the Automatic Variance Ratio test (AVR) of Kim (2009) and the Generalized Spectral test (GS) of Escanciano and Velasco (2006). Through Monte Carlo simulations, Charles et al. (2010) showed that AVR test has the best performances in the presence of linear dependencies, being more powerful than the classical autocorrelation tests, while the GS test performs most desirably under nonlinear dependencies. Both tests are robust in the presence of heteroskedasticity, their critical values being simulated through wild boostrap of Mammen (1993). The third element of originality is given by the dynamic investigation of the degree of efficiency, by applying these tests over subperiods of time.

2. Literature review

Until now, testing the weak form of informational efficiency of the Romanian capital market was achieved only based on daily frequency data. A first significant study was conducted by Dragotă and Mitrică (2004). Using the daily returns of the six most liquid stocks listed on Bucharest Stock Exchange (BSE) during the period April 1998 – October 2000 and a classic methodology (stationarity and correlation tests), they found that the Romanian capital market is not efficient in weak form due to lack of liquidity, although stock prices tend to follow a random walk. The idea that stock prices follow a random walk is, however, contradicted by the results of a recent study conducted by Dragotă et al. (2009), based on a more complex methodology (Cowles-Jones test, run tests and variance ratio tests). This methodology was applied on the daily and weekly returns of market indices and of 18 stocks listed on BSE, during a much longer period. The hypothesis of random walk is generally rejected in the case of indices, while the results for stocks are mixed. Assuming that the informational efficiency of a capital market should be evaluated in dynamic, Todea A. (2008) combines the random walk tests with those of technical analysis on daily returns of the BET index during September 1997 – August 2007. The results indicate that the linear and nonlinear dependencies have an episodic character, and especially the nonlinear dependencies are being exploited by the adopted moving average strategy. The episodic behavior of linear and nonlinear dependencies is also highlighted by Todea and Zoicaş-Ienciu (2008) on Central and Eastern Europe stock markets through an autocorrelation test and the bicorrelation test applied on rolling windows. Lazăr et al. (2009) identify short term linear and nonlinear dependencies and also the presence of long memory in case of some stocks listed on BSE.

Although the vast majority of investors analyse intraday data to make decisions, in the literature there are few studies investigating the hypothesis of random walk on such type of data and none on the Romanian capital market. Thus, Thomas and Patnaik (2002) found that India is informational inefficient once they applied the variance ratio test on the returns calculated at a five minutes frequency for the period March 1999 – February 2001. They also found that liquidity has a serious impact on the serial correlation exhibited by a stock which persists even after heteroskedasticity has been filtered. Singh and Kumar (2009) reached the same conclusion for the period January 2008 – October 2008 for all the prices series, five minute, hourly and daily. However, the variance ratio test showed mean reversion tendency for five minute prices, which is not the case with hourly and daily prices. The Malaysian capital market was analysed between September 1998 – April 1999 by Goh and Koh (2006) who incorporated the intraday seasonality in the process of the following models: OLS,

GARCH, ARCH-M, EGARCH and TARCH. The results indicate that the ten-minute returns exhibit a significant time-varying volatility and show that even a simple OLS model incorporating only the intraday seasonality can out-perform the accuracy of a random walk model for obtaining ten-minute-ahead market index forecasts. The forecast accuracy improves further with the incorporation of time-varying volatility in the model. Strawiński and Ślepaczuk (2008) tested between 1998-2008 if the Polish capital market is informational efficient. Based on daily and five-minute returns they found a strong hour of the day effect and a end of session effect that are closely connected with substantial fluctuations of volatility at the same time.

3. The data sample and its statistical characteristics

The research was conducted based on the intraday quotations of the BET index for the time period covering November 2, 2009 through April 30, 2010, that is 124 days and a total of 30949 observations.

Table 1

Descriptive statistics for intraday returns of the BET index

	Period nov. – apr.	Monthly					
		Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Mean	$8.19x10^{-6}$	$1.81x10^{-5}$	$-9.05x10^{-6}$	$1.57x10^{-5}$	$1.10x10^{-5}$	$1.49x10^{-5}$	$-6.35x10^{-6}$
Median	0.0000	0.0000	0.0000	$2.83x10^{-5}$	0.0000	$2.40x10^{-5}$	$-2.96x10^{-5}$
Maximum	0.0217	0.0072	0.0077	0.0057	0.0217	0.0060	0.0053
Minimum	-0.0119	-0.0111	-0.0119	-0.0049	-0.0041	-0.0038	-0.0053
Standard deviation	0.0007	0.0009	0.0010	0.0007	0.0007	0.0005	0.0006
Skewness	0.6245	-0.2698	-0.3582	0.0467	6.1767	0.2236	-0.1121
Kurtosis	34.9522	11.0198	12.2961	7.2606	190.9541	10.2998	10.3719
JB	1318522 (0.000)	12006.58 (0.000)	12941.83 (0.000)	3641.380 (0.000)	6755861 (0.000)	16701.69 (0.000)	13676.16 (0.000)
Q (12)	29.152 (0.004)	18.667 (0.097)	21.242 (0.047)	28.663 (0.004)	18.881 (0.091)	40.225 (0.000)	13.872 (0.309)
ADF[(a)]	-1.528 (0.519)	-1.306 (0.628)	-1.850 (0.356)	-3.246 (0.017)	-0.622 (0.863)	-1.548 (0.509)	-0.496 (0.889)
ADF	-178.155 (0.000)	-69.108 (0.000)	-44.835 (0.000)	-68.105 (0.000)	-67.960 (0.000)	-90.612 (0.000)	-77.420 (0.000)

[(a)] ADF test on intraday prices.

As we can see from Table 1, the intraday average return of the BET index is positive for the period November 2009 – April 2010 as well as for November, January, February and March, with the highest value in November. Negative average returns were recorded for December and April. Regarding the volatility of these returns it can be observed a downward trend during the months under study. The skewness and kurtosis coefficients provide an image of the distribution form of intraday returns which, in all cases, is asymmetric – positive asymmetry in January, February, March and the whole period, and negative asymmetry in November, December and April – and has a more acute peak around the mean and long distribution tails. The high values of kurtosis coefficient (for example, February: 190.95) are typical for high frequency series. The Jarque-Bera test, built on these coefficients of skewness and kurtosis, confirms the significant deviation of intraday returns of the BET index from the normal law of probability. The Ljung-Box statistic for 12 lags indicates some linear dependencies in the returns in December, January, March and the whole period.

The first condition of martingale hypothesis is that the series of index values to be difference-stationary or the returns series to be stationary, respectively integrated of order

zero. The ADF statistics reported in Table 1 show that this condition is verified both for the whole period and the subperiods.

4. Methodology

The AVR and GS tests are applied on the whole sample and on subperiods of half a month in order to see whether the degree of predictability is time-varying. The two test have good asymptotic properties, even if they are applied to each session, given that the daily volume has more than 200 observations. Next will be a brief description of the two tests.

4.1. The AVR test of Kim (2009)

Let y_t be the rate of return at time t, where $t = 1,\ldots,T$. It is assumed that y_t is a realization of the underlying stochastic process Y_t. The variance ratio tests are based on the property that, if Y_t follows a martingale difference sequence, the variance of *k*-period return is *k* times the variance of one-period return. In other words, the variance of *k*-period return increases proportionally with *k*. Because in the original version proposed by Lo and MacKinlay *k* was not specified, Choi (1999) proposes a procedure for selecting it optimally. The properties of this test in small samples were investigated when the returns followed a i.i.d. process, while its properties under conditional heteroskedasticity were unknown. Kim (2009) improves this shortcoming by proposing the AVR test in which the critical values are determined through wild boostrap, thus being robust under conditional heteroskedasticity. Moreover, through simulations, he shows that the power of this test is higher than its competitors who rely on variance ratio.

Thus, Kim (2009) develops the AVR test starting from the Automatic Variance Ratio test of Choi (1999) which is based on the statistic $VR(k) = 1 + 2\sum_{i=1}^{T-1} m(i/k)\hat{\rho}(i)$, where $\hat{\rho}(i) = \dfrac{\sum_{t=1}^{T-i}(Y_t - \hat{\mu})(Y_{t+i} - \hat{\mu})}{\sum_{t=1}^{T}(Y_t - \hat{\mu})^2}$, $\hat{\mu} = T^{-1}\sum_{t=1}^{T} Y_t$, and $m(x) = \dfrac{25}{12\pi^2 x^2}\left[\dfrac{\sin(6\pi x/5)}{6\pi x/5} - \cos(6\pi x/5\right]$ is the quadratic spectral kernel. Choi (1999) mentioned that the $VR(k)$ statistic is a consistent estimator for $2\pi f_Y(0)$, where $f_Y(0)$ is the normalized spectral density for Y_t at zero frequency and showed that, under the hypothesis $H_0^A : Y_t$ is serially uncorrelated, $AVR(k) = \sqrt{T/k}\left[VR(k) - 1\right]/\sqrt{2} \xrightarrow{d} N(0,1)$ when $k \to \infty$, $T \to \infty$, $T/k \to \infty$ and Y_t follows a white noise process with a finite fourth moment. Without demonstration, Choi (1999) stated that the $AVR(k)$ statistic follows the normal law of probability only when Y_t is generated from a martingale difference sequence. For optimally choosing *k*, the author used the method of Andrews (1991) for spectral density at zero frequency, denoting, therefore, the statistical test as $AVR(\hat{k})$. Because $AVR(\hat{k})$ test is an asymptotic test which may show deficient small sample properties and Y_t is subject to conditional heteroskedasticity, the wild boostrap technique of Mammen (1993) is employed to improve small sample properties.

The wild bootstrap for $AVR(\hat{k})$ can be conducted in three stages as below:

(i) Form a bootstrap sample of *T* observations $Y_t^* = \eta_t Y_t (t = 1,\ldots,T)$ where η_t is a random sequence with zero mean and unit variance;

(ii) Calculate $AVR^*(\hat{k}^*)$, the *AVR* statistic obtained from $\{Y_t^*\}_{t=1}^{T}$;

(iii) Repeat (i) and (ii) B times to form a bootstrap distribution of the test statistic $\left\{AVR^*(\hat{k}^*; j)\right\}_{j=1}^{B}$.

The *p*-value of the test can be obtained as the proportion of $\left\{AVR^*(\hat{k}^*; j)\right\}_{j=1}^{B}$ greater than the $AVR(\hat{k})$ statistic calculated from the original data.

4.2. The GS test of Escanciano and Velasco (2006)

The null hypothesis of martingale difference sequence which should be verified by GS test, can be expressed as $H_0 : m_j(y) = 0, j \geq 1$, where $m_j(y) = E[Y_t - \mu \mid Y_{t-j} = y]$, μ is a real number and $\{Y_t\}_{t=1}^{\infty}$ is the stationary time series of returns. In order to test if a sequence is a martingale difference sequence, a measure for conditional mean dependence is considered, $\gamma_j(x) = E\left[(Y_t - \mu)e^{ixY_{t-j}}\right]$ which, through the exponential weighing function, identifies this dependence in a nonlinear framework. Thus, testing the null hypothesis implies testing the condition: $\gamma_j(x) = E\left[(Y_t - \mu)e^{ixY_{t-j}}\right] = 0$.

Escanciano and Velasco (2006) suggest that in order to test the null of a martingale difference sequence should be used the generalized spectral distribution function. Hence, by applying the Fourier transformation, one has to estimate the following process:

$$H(\lambda, x) = \gamma_0(x)\lambda + 2\sum_{j=1}^{\infty}\gamma_j(x)\frac{\sin(j\pi\lambda)}{j\pi}, \quad \lambda \in [0;1]$$

Since $\{Y_t\}_{t=1}^{n}$ is a finite size sample, the estimation of the previous expression becomes:

$$\hat{H}(\lambda, x) = \hat{\gamma}_0(x)\lambda + 2\sum_{j=1}^{n-1}\left(1-\frac{j}{n}\right)^{1/2}\hat{\gamma}_j(x)\frac{\sin(j\pi\lambda)}{j\pi},$$

where $\left(1-\frac{j}{n}\right)^{1/2}$ is a finite sample correction factor, $\hat{\gamma}_j(x) = \frac{1}{n-j}\sum_{t=1+j}^{n}(Y_t - \bar{Y}_{n-j})e^{ixY_{t-j}}$ and $\bar{Y}_{n-j} = \frac{1}{n-j}\sum_{t=1+j}^{n}Y_t$.

The main advantage of this test consists in taking into consideration all existing lags. Therefore, the null hypothesis is equivalent to $H(\lambda, x) = \gamma_0(x)\lambda$ and a new statistic for testing the martingale difference sequence null hypothesis is considered:

$$S_n(\lambda, x) = \left(\frac{n}{2}\right)^{1/2}\left\{\hat{H}(\lambda, x) - \hat{H}_0(\lambda, x)\right\} = \sum_{j=1}^{n}(n-j)^{1/2}\hat{\gamma}_j(x)\frac{\sqrt{2}\sin j\pi\lambda}{j\pi}$$

where $\tilde{\gamma}_{jk} = \frac{1}{n-j}\sum_{t=1+j}^{n-1}(Y_t - \bar{Y}_{n-j})Y_{t-j}^k$

Using the Cramer-von Mises, to measure the distance of $S_T(\lambda, x)$ to zero, and the cumulative distribution function of standard normal distribution as a weighting function, Escanciano and Velasco (2006) obtain the following test statistic:

$$D_n^2 = \sum_{j=1}^{n-1}\frac{(n-j)}{(j\pi)^2}\sum_{t=j+1}^{n}\sum_{s=j+1}^{n}(Y_t - \bar{Y}_{n-j})(Y_s - \bar{Y}_{n-j})\exp(-0.5(Y_{t-j} - Y_{s-j})^2).$$

As the GS test statistic has not a standard asymptotic distribution, D_n^2 is evaluated by using a wild boostrap technique, which involves the usage of a random variable w. Therefore, when implementing this statistic one has to estimate the value for $S_n^*(w)$ instead of $S_n^*(\lambda, x)$

and then the asymptotic distribution of the $S_n(w)$ process. The acceptance probability of the null hypothesis (*p*-value) is computed by performing the following steps:

(i) From the original sample $\{Y_t\}_{t=1}^n$ an independent random variable $\{w\}_{t=1}^n$ with zero mean and unit variance is generated;

(ii) Using the $\{w\}_{t=1}^n$ variable, the sequences $\hat{\gamma}_j^*(x)$ and $S_n^*(w)$ are calculated and are then used for computation of the D_n^{*2} statistic;

(iii) Repeat (i) and (ii) B times to form a bootstrap distribution of the test statistic $\{D_n^{*2}\}_{j=1}^B$.

The bootstrap distribution $\{D_n^{*2}\}_{j=1}^B$ is used to approximate the sampling distribution of the D_n^{*2} statistic. The *p*-value of the test is estimated as the proportion of $\{D_n^{*2}\}_{j=1}^B$ higher than the D_n^2 statistic calculated from the original data.

5. Empirical results

The results in Table 2 show that the AVR test led to acceptance of the martingale hypothesis both for the whole period and for subperiods of half a month, except March. The performance of this test is high under linear dependencies, but the acceptance of the martingale hypothesis implies the absence of linear and nonlinear dependencies in conditional mean. The low performance of variance ratio test in case of TAR and STAR type nonlinear dependencies is highlighted by Maki (2008), justifying the opportunity to use the GS test in verifying the hypothesis of martingale. As already mentioned, the high performance of GS test under nonlinear dependencies is pointed out by Charles et al. (2010), which recommend it in their investigation. The last column of Table 2 shows that the probability of accepting the null hypothesis of martingale as a result of this test is zero, both for the whole period and for subperiods.

Table 2

Empirical results of AVR and GS tests over the whole sample and over subperiods of 15 days

Period	AVR				GS
	Test statistic	*p*-value	Confidence interval		*p*-value
			2.5 %	97.5 %	
Whole sample	-1.538	0.161	-2.165	2.199	0.000
November	-1.789	0.482	-2.004	2.154	0.000
	0.482	0.561	-2.011	2.150	0.000
December	0.494	0.501	-1.750	1.887	0.000
	-0.365	0.650	-1.966	2.131	0.000
January	1.115	0.168	-1.565	1.750	0.000
	0.034	0.866	-1.836	1.889	0.010
February	-0.218	0.646	-1.560	1.738	0.000
	0.167	0.739	-1.614	1.785	0.010
March	-2.531	0.011	-1.865	1.995	0.000
	-2.254	0.061	-2.315	2.587	0.000
April	-0.813	0.282	1.634	1.651	0.000
	0.786	0.336	-1.887	2.002	0.000

Further, given the good asymptotic properties of the two test in small samples, the hypothesis of martingale was tested for each seassion in March. In this subperiod, the AVR test rejected the hypothesis, raising the question of whether these identified dependencies, which are presumed to be mostly linear, occur all the time or episodically. Taking into

account a risk threshold of 10% we see in Figure 1 that the AVR test rejects the hypothesis of martingale on 8, 9, 10, 16 and 18 March, *p*-values (0.038, 0.064, 0.046, 0.03 and 0.041) being smaller than 0.1. The same figure shows that the GS test rejects the hypothesis of martingale in almost every session of March, except for three days, 2, 11 and 12 March, for the same risk threshold of 10%.

Regarding the existence of nonlinear dynamics, the literature has identified a number of possible factors which could cause nonlinear incorporation of new information in stock prices. On developed markets, these factors would be: irrational behavior of investors, difficulties in conducting arbitrations, the heterogenity of investors' objectives, market microstructure, the diversity of market actors' perceptions. The nonlinearity of stock returns on emerging markets is amplified by a number of specific factors such as: the presence of less sophisticated investors, low liquidity, high volatility, a more pronounced irrational behavior of investors and trading costs.

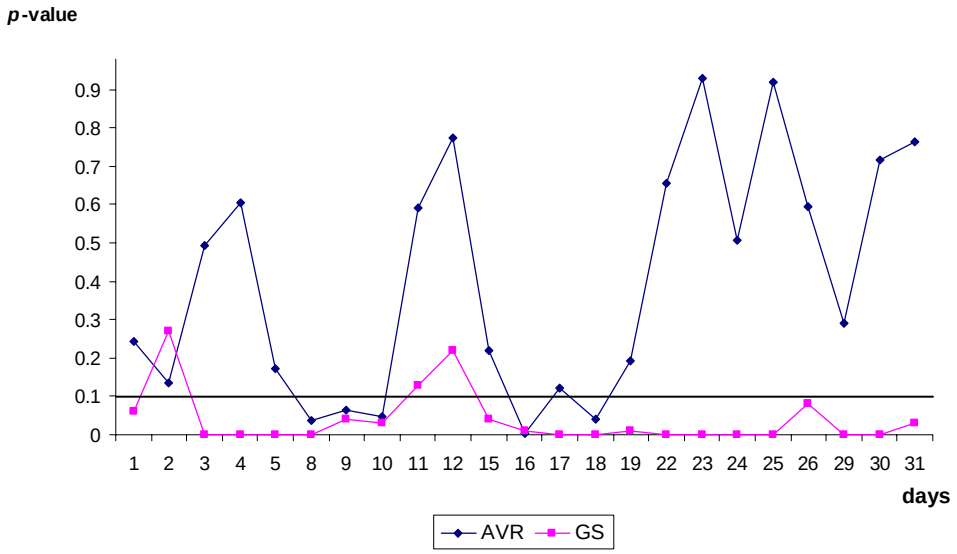

Figure 1. *The evolution of p-value in March*

6. Conclusions

In this study the hypothesis of martingale was tested based on the intraday data of the BET index and using two tests that have high performances in case of various types of dependencies, linear and nonlinear, and thus complete each other. Is important to mention that the acceptance of martingale hypothesis is equivalent with accepting the hypothesis of informational efficiency in weak form, but its rejection does not necessarily implies inefficiency. The hypothesis of inefficiency is accepted only when these dependencies are exploited profitably.

In case of the BET index, tested on intraday data, it can be stated that there is a high potential of predictability and the implicit assumption of inefficiency, potential especially given by the existence of nonlinear dependencies. This assumption is strengthened by a series of studies such as those of Todea (2008) and Todea et al. (2009), which indicate that the moving average strategy exploits especially the nonlinear dependencies. It is also observed that these dependencies manifest themselves in an episodic way, which showes a time-varying potential of predictability and hence a time-varying degree of efficiency. This kind of behavior pleads rather in favour of the Adaptive Market Hypothesis of Lo (2004) than in favour of the Efficient Market Hypothesis of Fama (1970).

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FISCAL POLICY IMPACT UPON EUROPEAN AND NATIONAL ENTREPRENEURIAL ENVIRONMENT

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Abstract. *The entrepreneurial environment is undergoing a series of financial, fiscal and social essential changes under the impact of the economic and financial crisis. Taking into consideration that at both national and international level when taking about economical re-launching we notice the growing importance of the industrial domain, this paper is aiming to analyze the European and national fiscal policy, in general, and to underline it's impact upon the industrial entrepreneurs, in special.*

Thus, the research is focused upon two significant indicators – fiscal pressure and effective tax quota, both analyzed for the industrial domain.

Keywords: entrepreneurship; fiscal policy; fiscal pressure; effective tax quota.

JEL Codes: H12, H32.
REL Codes: 10J, 14C.

1. Introduction

Fiscal systems are key-factors in influencing economies, determining the penchant for economies, investments or labor, influencing production increase or employment degree, which are economic strategy essential elements, making from the fiscal reform an important part of the economic reform.

Under the globalization impact factor's mobility has increase and with it economic integration is bringing into discussion the fiscal arbitration regarding enterprise localization and especially capital and labor localization. Thus, competition between European states faces a new challenge: increase national territory attractiveness. Most times a state capacity to attract foreign capitals and to preserve national ones is liked to the promoted fiscal policy.

Entrepreneurship, under its many forms, has an important place in all market economies and it is a key factor in creating new jobs, economic development and innovation. European Union policies, either financial fiscal, social or exchange ones, will influence entrepreneurship evolution, furthermore its sectors evolution.

At European level (European Commission, Key figures on Europe, 2010) an analysis upon added value generated by activity sectors revels that the industry sector owns an important place among entrepreneurial activity domains. Thus, industry is generating 20.1%

of European total added value generated, being over-passed by the financial domain (28.1%), the service domain (21.0%) and by the other services domain (22.5%). The other domains are agriculture with a 1.8% added value generated and construction with 6.5%.

At national level, industry is generating 25.6% from the total added value, placing its self second after services, with a generated added value of 26.1%, while agriculture is generating 7.2%, constructions are generating 11.8%, finances are generating 14.2% and other services are generating 15.2% from total added value.

2. Fiscal policy and the European entrepreneurship

According to European commission analysis for 2008, the European Union-27 is presented as a high fiscal area. Thus, in 2008, fiscal revenue percentage, as average, in the gross domestic product (GDP) has been 39.3%, with one third over the USA and Japan levels and with 4.8 percentage points over the New Zeeland level (34.5%). The European area had in 2007 the same trend when European fiscal pressure (measured as the fiscal revenue (including here beside direct and indirect taxes, the social contributions) percentage in the gross domestic product) has been 39.8% with 12 percentage points over the USA and Japan levels.

Regarding fiscal revenue structure (direct taxes, indirect taxes and social contributions) we can notice that in states adhered before 2004 the structure is relatively constant, the three types of revenue owning almost 1/3 from total with one exception (Malta) where direct taxes have the lowest percentage.

Analyzing indirect taxes percentage in total fiscal revenue (including social contributions) we notice that new member states have the highest values. Thus, Bulgaria is the state with the highest level of 55.7%, with 21.8 percentage points over the European average, and Finland is at the opposite pole with a 30.6% level. Romania, being one of the newest European members, has an indirect taxes percentage of 42.7%, with 8.8 percentage points over the European average.

In the case of direct taxation the situation is in reverse. Thus, Bulgaria (21.0%) is again the state find at an European extreme, this time the lowest one, with 10.3 percentage points under the European average of 34.3%. At the opposite pole, again a Nordic state, Denmark with a 62.3% level, with 28 percentage points over the European average. This situation can be explained by the fact that most recent member states have adopted flat rates and their immediate effect is decreasing collected direct taxes volume. Romania, with a 24.0% level, is respecting the recent member states trend.

As regarding social contribution levels the European trend is indirect taxes alike. Thus, European Union average is 32.0% and newest member states are situated over it and states adhere before 2004 are situated under it. The Czech Republic is the state with the highest social contribution percentage in the total fiscal revenues, with 12.9 percentage points over the European level and at the opposite pole we find Denmark (2.0%), with 30 percentage points under the European average. Romania's level is just with 1.3 percentage points over the European average.

Differences occur between states adhere before 2004 too, thus in Great Britain or Ireland direct taxes percentage in total fiscal revenues is high and at the same time social contribution percentage is low (the paradox occurs because, most times, direct taxes are correlated with social contributions) because in these states, financing social actions funds are coming from the outside of the fiscal system.

As regarding European entrepreneurship we focused upon capital and its taxation modes. Even though it is considered one of the most important taxes, profit tax is not the main European revenue source. Thus, in 2008 profit tax percentage in GDP at European level has been 2.7% with a 0.3 percentage points decrease face to 2007 and in most member states its level was slightly over or under 3%. There are, however, two exceptions, namely Malta, with a 7.1% level, and Cyprus, with a 6.8% level. The lowest level has been registered by Germany, with a 1.15 level, while Romania was been located around the average with a 3.0%

level. In 2009 Malta has had the highest level for the profit tax, namely 35.0% and at the opposite pole were Bulgaria and Cyprus, both, with a 10% flat rate. In Romania profits are imposed after a 16% flat rate, with 7.2 percentage points over the European average of 23.2%.

From the entire European member states just six have modified their tax rate in 2009 face to 2008, five decreasing it and just one increasing it. All the other members maintained their profit tax levels. But, in 2010, European states have again, modified profit tax rates, under the economic and financial crisis hollow as shown in Table 1.

Table 1

Profit tax rates modifications

– % –

Country	Quota		
	2008	2009	2010
Czech Republic (CZ)	21	20	19
Luxembourg (LU)	29,6	28,6	28,6
Slovenia (SI)	22	21	20
Sweden (SE)	28	26,3	26,3
Great Britain (UK)	30	28	28
Lithuania (LT)	15	20	15
Greece (EL)	25	25	24
Hungary (HU)	21,3	21,3	20,6

Source: European Commission (eurostat), "Taxation trends in the European Union data for the EU Member States and Norway", 2009 and 2010.

Under the first negative impact of economical and financial crisis, Great Britain was the European state with the most significant profit tax quota change of two percentage points in the sense of decreasing it while Lithuania was the only member state that increased its profit tax quota with five percentage points. In 2010 two new member states have modified their profit tax quotas, Greece decreased it with one percentage point and Hungary decreased it with 0.7 percentage points. If in 2009 it was the only state increasing its profit tax quota, in 2010, Lithuania has return to its 2008 level of 15% flat rate. Czech Republic and Slovenia have continued their decreasing trend furthermore with 1 percentage point to 19% and 20% flat rates.

3. Fiscal policy impact upon industrial domain

The industry is one of the most important branches of material production and of the whole economy. It became the main activity in Europe and North America during the industrial revolution, which put an end to the merchant economy, through a series of inventions that have revolution world's economy. Industrial countries have shortly become capitalist and develop commercial links with foreign markets.

Nowadays, at European level the industry is one of most important branches generating almost 20% of the added value and it is in a continues development. The same trend can be seen for this branch at national level.

From within the domain, at European level (EU-27) the manufacturing sector generate 30,3% of the total added value, at the same using 26.5% of the total work force and owning 11.5% from the total domain firms.

Furthermore, at national level, according to data from National Statistic Institute (Statistic Bulletin for Industry, 2010), the brut production index has registered an increase of 20.4%, increase due to industry in a proportion of 25.3%. The brut production index for industry has been influenced by the extension of some branches as: fabrication of pharmaceutical products (+54.8%), textile products fabrication (+43.0%), other industrial activities (+49.0%) and optical, electronic products and computer fabrication (+35.8%).

Noticing at national level the importance of the industry sector and within it the processing domain, the sample firms, which is the base for our analysis (data have been processed from financial situations, respective balance sheets and income statements), have been chosen thus information generated based upon this sample can reflect the real situation of this important national domain. Thus the sample is formed by 40 firms from industry branches such as: textile products fabrication, garment articles fabrication, pharmaceutical products fabrication, wood processing, paper and paper products fabrication, rubber products fabrication.

Our analysis has been focusing upon fiscal policy impact upon the entrepreneurship in this domain based upon two indicators: fiscal pressure and profit tax effective quota.

We state that in the analyzed period, years 2008 and 2009, under the economical and financial crisis impact, Romanian fiscal policy has raw over a series of profound modifications, that have imprinted upon the financial situation analyzed and implicitly upon the payable profit tax.

So, through reforms states have had a difficult mission to accomplish, that being finding a mix of policies that will ensure necessary resources for public institutions and at the same time achieving financial, budgetary and social objectives. Most times the easiest way to collect resources at national level is by changing fiscal legislation, and so, the public power is directly interested on how this fiscal modification can and will affect entrepreneurship.

Fiscal pressure is a way of measuring tax impact upon entrepreneur environment. This indicator is determined by dividing, at macro-economic level, the total amount of fiscal revenues, including social contributions, to the gross domestic product. This rapport shown a general fiscal pressure, but by excluding social contribution from the total amount of fiscal revenues, we are obtaining an indicator which shows just the tax (direct and indirect) impact upon entrepreneurship. Furthermore, if we want to obtain a detailed impact of financial and fiscal policies promoted by the state upon entrepreneurship, the indicator fiscal pressure can be determined in a limited manner by replacing the fiscal revenues value with any of its components.

Table 2

Fiscal pressure evolution by components (%)

Indicators	EU-27 average	Maximum value	Minimum value	Romania	
	2008	2008	2008	2008	2009
General fiscal pressure	39.3	Denmark: 48.2	Romania: 28.0	28.0	28.46
Indirect fiscal pressure	13.4	Bulgaria: 18.6	Spain: 10.2	12.0	10.3
Direct fiscal pressure	13.5	Denmark: 30.0	Slovakia: 6.4	6.7	6.3
Social fiscal pressure	12.6	France: 16.1	Denmark: 1.0	9.3	10.98

Source: *European Commission (eurostat), "Taxation trends in the European Union Data for the EU Member States and Norway", 2010, process data from Finance Minister site.*

The general fiscal pressure, determined as the rapport between total fiscal revenues, including social contributions, and the gross domestic product, shows the impact of fiscal and social policies upon economy.

Romania has the lowest level of general fiscal pressure from the EU-27, with a level of 28%, at a difference of 28.2 percentage points form Denmark, the state with the highest level. Romania is also under the European average with 11.3 percentage points and under the 2009 level with 0.46 percentage points.

General fiscal pressure impact can be detailed according to the fiscal revenues components as follows: indirect fiscal pressure, direct fiscal pressure and social fiscal pressure.

The indirect fiscal pressure, determined as the rapport between indirect taxes value and the gross domestic product, has been in 2008 in Romania close to the European level, with only 1.4 percentage points under it and with 1.66 percentage points under the highest level registered in Bulgaria. In 2009 the level has decreased to 10.3%.

The direct fiscal pressure, determined as the rapport between the direct tax value and the gross domestic product, has registered at European level in 2008 a 13.5% value. In the case of direct taxation differences between registered values are the biggest. Thus, between the state with the highest direct fiscal pressure, Denmark (30%) and the state with the smallest direct fiscal pressure, Slovakia (6.4%), are 23.6 percentage points. Romania has registered a decreasing direct fiscal pressure from 6.7% in 2008 to 6.3% in 2009.

The social fiscal pressure, determined as the rapport between social revenues and the gross domestic product, shows that Denmark in the state with the smallest social fiscal pressure with just 1.0% value, with 11.6 percentage points under the European average of 12.6%. In Romania in 2008 the social fiscal pressure was 9.3%, with 3.3 percentage points under the European average, but in 2009 its level increased to 10.98%.

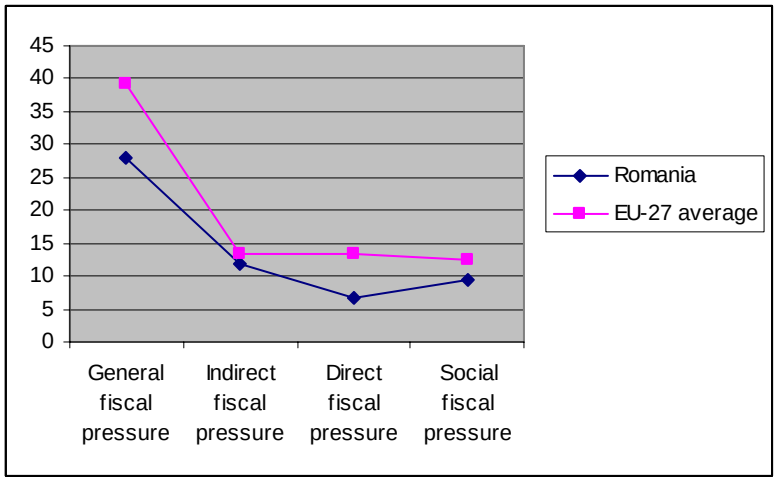

Figure 1. *Fiscal pressure evolution, Romania versus EU-27* (2008)

Both at national and analyzed sector level the fiscal pressure is presented in table 3.

Table 3

National fiscal pressure (%)

	General fiscal pressure		Limited fiscal pressure	
	2008	2009	2008	2009
Romania	28.0	28.46	18.3	17.5
Analyzed sector average	22.31	31.96	5.02	7.45

Source: own data processing.

Differences between national and analyzed sector values are explained by the fiscal policy modifications in the analyzed period of time. Thus, in 2008 the average general fiscal pressure in the analyzed domain is under the national value with 5.69 percentage points, but in 2009 is over the national value with 3.5 percentage points. This positive difference is explained by the minimum profit tax value impact introduced starting from the 1st of May 2009 and its completion, entrepreneurs with fiscal losses are oblige to pay the minimum profit tax.

From the analyzed sample in 2008, 16 entrepreneurs have registered a general fiscal pressure over the sector average and 24 under this value and for the next year just 8 entrepreneurs have registered a general fiscal pressure over the sector average.

Regarding the limited fiscal pressure differences between national and sector average are more significant.

If we would analyze cumulatively the two indicators, general fiscal pressure and limited fiscal pressure, we would notice that beside fiscal policy modifications, social policy modifications have had a greater impact upon the analyzed sector. Thus, social legislation, regulating both employer and employee social contributions, has gone through a series of modifications negatively influencing the analyzed sector. This way we mention that only the social insurance contribution has been modified four times from a 19.5% value in 2008 to a 20.8% value in 2009, thus in November 2008 the quota was 19.5%, in December it was decreased to 18.0% but in January 2009 it was increased to 18.5% and finally in February 2009 was fixed at 20.8%. Furthermore, the last social legislation modification has affected only the employers, increasing the amount owed by those to the state social insurance budget.

Fiscal instability had had negative effects upon the analyzed sector especially in 2009, when effects of introducing the minimum profit tax were corroborated with social legislation modifications. In 2008 from the 40 entrepreneurs analyzed 16 were presenting a limited fiscal pressure over the sector average, while in 2009 there number increased to 12, but the limited fiscal pressure increased with 2.43 percentage points too.

Another powerful indicator for analyzing fiscal impact upon entrepreneurship is the profit tax, determined by applying the statutory tax quota (in Romania 16%) upon a calculation base represented by the imposable profit (Vintilă, 2006). This statutory tax quota is different than the effective tax quota, which reflects truly the fiscal policy impact upon the entrepreneurship environment. Thus, the statutory tax quota does not accurately reflect the fiscal burden such as fiscal stimulants (reduced imposable bases or different fiscal treatments for revenues and expenses) offered by the states fiscal authorities.

Mendoza E.G. et al. (1994) were stating that the effective tax quota at macroeconomic level is determined by dividing the profit tax, revenue tax and capital gains tax, levied on enterprises, to the operating gross surplus, while Callihan (1994) considers that it represents the rapport between enterprise taxes and revenues, with no further mention as regarding the revenues nature. Other authors (Gupta, 1997, Devereux, 2008), under the fiscal reforms effect from the last two decades, have research the possibility that a state fiscal policy might be founded as a response to another state fiscal modification. They were stating that enterprises are establishing their capital structure according to the marginal effective tax quota, but, in the same time, are choosing profit location according to statutory profit tax quota positive differences. Thus, fiscal competition between states is getting new dimensions; states are competing at marginal tax quota for capital and at statutory tax quota for profits.

An overview of the literature shows that there are many ways to determine the effective tax quota based upon financial statements results. Nicodeme (2001) was stating that the effective tax quota can be determined as the rapport between owed profit tax and gross profit or the rapport between profit tax and turnover. The first modality is actually the most common one used being at the same time the most relevant both financially and fiscally, because the second one does not take into account enterprise costs. Gupta (1997) was stating that the effective tax quota is determined as the rapport between profit tax and the earnings before interest and taxes or as the rapport between the profit tax and the operating cash-flow before interest and taxes.

An analysis based upon the effective tax quota, no matter the way it is determined, aims to underline the fiscal and accountable policies impact upon enterprise results.

In the authors opinion the most relevant modality to determine the effective tax quota is the ratio between the profit tax owed and the gross profit. Furthermore, this quota is an important fiscal risk analysis element through the fiscal elasticity coefficient, determined as the rapport between the net profit variation and the brut profit variation, where the net profit is resulting after correcting the gross profit with the effective tax quota.

The effective tax quota analysis has been performed only for 2009, because this year had had the most significant fiscal regulations modifications.

For the analyzed sample 65% of the entrepreneurs have presented an effective tax quota under the statutory level and just 35% of them were over it. Thus, entrepreneurs under the statutory level had realized a fiscal profit lower than the accountable one, and those over this level have had either an imposable profit bigger than the accountable one, either have had a fiscal loss and were oblige to pay the minimum profit tax.

Average effective tax quota for the analyzed sector was 16.88%, with 0.88 percentage points over the statutory level. This is due to the introduction of the minimum profit tax and its mandatory payment even if the entrepreneurs have obtained a fiscal loss and in normal conditions would owe nothing. Thus, 25 entrepreneurs have had an effective tax quota under the sector average and 15 were situated over this level. As in the former case, enterprise position over or under this level (sector average) is due to the national fiscal policy and self fiscal practices for each enterprise.

4. Conclusions

The entrepreneurial environment is influenced by a diversity of financial, fiscal, social and political factors. At European level states cooperation is burdened by the fiscal systems complexity centered upon divergent imposing schemas. Thus, in develop stated fiscal pressure is based on direct taxes while in under-developing countries, among which Romania, fiscal pressure is based on indirect taxes.

The industrial domain is one of the most important production branches and at the same time of the states economy, but at national level, because of the multiple fiscal modifications, in general and social contribution modifications, in particular, the fiscal pressure in this domain has significantly varied from the one felt at national level

The analysis, focused upon two indicators, that are taking into account fiscal modifications impact upon industrial entrepreneurships, underlines the fact that the last years Romanian fiscal instability, in general, and furthermore since the end of 2008, when at national level the first negative impacts of the economical and financial crisis were felt, in particular, are affecting in an irreversible manner the research domain.

Acknowledgements

In this paper is disseminated as part of the research results obtained in the Exploratory Research Project PN-II-ID-PCE-2008-2, no.1764, CNCSIS, financed from the state budget through the Executor Unit for Superior Education and University Scientific Research Activity Financing, Romania.

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CRITICAL ANALYSIS OF HOUSING FINANCING SYSTEMS IN TRANSITION ECONOMIES IN EUROPE

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Abstract. *Development of housing financing systems in transition countries in Europe had a difficult journey. Considering the rudimentary housing finance system, inherited from the period previous to 1990, the countries of this region have developed housing finance systems in increasingly complexity, not reaching, however, the securitization of mortgage debt, especially due to the crisis occurred in 2007.*

Keywords: housing financing systems; mortgage loan; real estate market; national housing policies.

JEL Codes: G21, R28.
REL Codes: 11C, 19G.

1. Introduction

Although there were no actual housing markets in former communist regimes, some real estate financing schemes existed in these countries. Real Estate properties were mainly state owned, but some citizens were allowed to buy homes from the state, although in most cases they were not allowed to resell properties. There were some types of financial arrangements to enable the purchase of buildings, characterized by long-term loans with low and fixed interest rates, provided, in general, by savings banks (Casa de Economii şi Consemnaţiuni, in the case of Romania). In essence, these loans were provided automatically, without making any assessment of the creditworthiness of credit beneficiary. Such a system could not operate in a market economy. However, the system worked for a while in countries like Poland or Bulgaria in the early stages of economic transformation, but the system proved to be ruinous for state budgets, as huge sums were needed to subsidize low-interest rates under conditions of extreme high inflation. To develop a Real Estate financing market, functional and sustainable in a market economy, other mechanisms were needed.

Efforts have been made for the development of several mechanisms, and Real Estate financing markets have developed. Methods used by different countries have different funding mechanisms, according to the strategies adopted during the reform process. The main providers of Real Estate financing in these economies are:

1. Commercial banks;
2. Mortgage banks or non-bank mortgage institutions, which generally issue mortgage securities;
3. Collective savings schemes;
4. Public funds;
5. Other Real Estate financing systems.

2. Real estate financing systems

2.1. Commercial banks

As credit institutions for individuals and legal persons, commercial banks are natural providers of mortgage financing. They have the largest market share in providing mortgage loans in the European Union. Universal banks provide mortgages in transition economies, but

this activity has long time remained at an early stage. The beginnings were characterized by expensive mortgage loans:

- The loans were provided with relatively short maturity of 10 years or even five years, but then the periods were extended;
- The amount financed of the transaction value (loan-to-value ratio) was much lower than than in Western countries;
- The banks imposed high interest rates, both in nominal and real terms; in some economies, the banks practiced only variable rate mortgage loans, such as double indexed interest rate in Poland, where the risk was fully transferred to the borrowers;
- In most cases, loans are denominated in foreign currencies, the US dollar or the euro, the currency risk being entirely transferred to the borrowers.

These products are not enough attractive for buyers of properties and, therefore, mortgage loans remain at a low share of total banking assets. However, in recent years, some economies in transition have experienced upward dynamic in terms of mortgage loans share as a result of macroeconomic stabilization.

To reduce the expense with mortgage loans and to promote real estate financing, some governments have provided financial or fiscal incentives for such loans, by using interest rate subsidy and/or preferential tax treatment. In Lithuania, a few selected commercial banks (including savings bank previously owned by the state) offer mortgage loans for purchase or construction of buildings with an interest rate of 5%, the difference to the market interest rate being covered by a public fund. This scheme resembles the mechanism described above and applied during the communist period, which was dropped in other transition economies. By contrast, the Czech Republic and Slovakia use a subsidy system that covers a prescribed level of interest rate (4% for new buildings and 6% for purchase of existing properties).

Another way to improve access to mortgage loans is a mortgage guarantee mechanism. Such a guarantee cannot be provided on a commercial basis, but countries such as Canada have developed a public system of mortgage loans guarantee to promote real estate/mortgage loans in economy. Among transition economies, Estonia, Lithuania and Slovakia have developed a mortgage loans guarantee scheme supported by the respective governments. Lithuania created the Lithuanian Company for Mortgage Loans Guarantee to provide mortgage loans for the purchase, construction or renovation of housing. Slovakia adopted in 1999 a government program to guarantee mortgage loans for building new housing, especially for rental by low-income people. Estonian Housing Foundation was founded in 2000, in cooperation with three commercial banks, in order to guarantee mortgage loans mainly for young families.

It is important that mortgage loans are not always dominant within the Real Estate loans in transition economies. In Bulgaria, for example, all real estate loans are reported to be mortgage guaranteed, but the share of mortgage loans was only 16% in 2002 within Real Estate loans. The restricted mortgage usage for Real Estate loans was caused by lack of legislation and consistent mortgage enforcement, especially in defaults. It is important that some borrowers in transition economies do not put high value on mortgages, in many cases requiring other collateral guarantee, like third parties guarantee.

2.2. Mortgage banks and non-bank mortgage institutions

These are institutions specialized in providing mortgage loans. In countries with advanced economies, mortgage banks are based on deposits made by people to fund mortgages, as commercial banks do. However, these banks have attracted funds by issuing mortgage securities, with the advantage of high ratings given by real property guaranteeing and a very strict legislation. A typical example is the German mortgage banks that issue mortgage securities (Pfandbriefe). Encouraged by financial innovation and deregulation, mortgage securities financing gained a strong expansion in recent years, although in some economies mortgage securities issues have been depleted in recent years.

Inspired by the German model, in the early 2000s, Hungary and Poland have adopted legislation on mortgage securities and mortgage banks. In Hungary, several mortgage banks have set up, including Land and Mortgage Credit Bank, owned by the state, which began to issue mortgage securities since 1998. In Poland, was adopted Mortgage Securities and Mortgage Banks Act in 1997, initially two mortgage banks established, and subsequently several others, who have issued several mortgage securities issues.

In subsequent years, legislation on mortgage securities and mortgage banks has been adopted in several countries in the region, including Latvia, Czech Republic and Slovakia, later Bulgaria. In Romania, although the legislation on mortgage credit was originally adopted in 1999, it did not foresee the possibility of establishing non-bank mortgage institutions, but minimally regulated mortgage securities issues. Subsequently, legislation was changed, allowing non-bank mortgage institutions to provide mortgage loans. Until now there has been no mortgage securities issue in Romania. However, in general, the laws of these countries differs to the German model because they do not require separate institution to conduct mortgages banking and to issue mortgage securities. Commercial banks can obtain a license for conducting operations to provide mortgage operations and securitize mortgages, as long as these activities are internally separated, according to the laws of that country. This suggests that universal banks have an alternative way to raise funds, even if they are for mortgage loans. Most mortgage banks in these countries are, in fact, universal banks, while only few are specialized mortgage banks.

Use of mortgage securities in mortgage loans financing has two advantages. One is that the issuance of mortgage securities could attract funds for a longer term than normal deposits and facilitates the function of banks to transform short-term attracted resources into long-term investments, which improves risk management. The second advantage is the ability to attract more funds from foreign investors, benefiting from the globalization of financial markets. It should be noted that the financing by issuing mortgage securities requires strict legal regulations and a broad base of investors, both as a challenge to the economies in transition. Therefore, it is imperative a well-established legal system, to ensure the foreclosure of mortgages. In countries with advanced economies, the largest investors in mortgage securities are insurance companies and pension funds, as institutional investors need a long investment horizon. If some expect foreign investors to play a role in this market, it must be also developed a domestic investor base, to enable a sustainable development of mortgage securities financing.

Another method of financing is the issuance of securitized mortgage debt. The method is very popular in USA and was gradually taken in many European Union countries, but not in transition economies. Romanian legislation provides the legal framework for the implementation of this type of mortgage securities, but has not made much progress towards its implementation.

2.3. Collective savings schemes

Collective savings schemes are quite popular in countries with transition economies. Such schemes are operational in the Czech Republic, Latvia, Poland, Romania, Slovakia, Slovenia and Hungary. Schemes' function based common rules: the scheme operator attracts deposits from applicants at lower interest rates than market conditions, and finances them in favorable conditions when deposits reach a certain level. However, collective saving schemes differ in some items. For example, the system adopted in the Czech Republic, Romania, Slovakia and Hungary are based on German and Austrian Bausparkassen model, which requires the existence of separate institutions to administer the scheme. Rather, the system adopted in Poland and Slovenia is administered mainly by existing commercial banks.

. Collective saving scheme has become the main source of financing in the Czech Republic and Slovakia, which introduced the system in the early 1990s. Schemes in Slovenia and Hungary, introduced in 1999 and 1997 respectively, have also attracted many adherents.

Poland adopted two types of collective saving schemes. One is kasa mieszkaniowa, adopted by law in 1995, and the other is kasa oszczednosciowo-budowlana, adopted in 1996. The first system began operating in 1996, with modest success, and the second was modeled after Bausparkassen.

Collective saving schemes success was mainly due to incentives offered by the state. In most countries that have been adopted the system, the state imposed premiums on deposits paid as a subsidy from the state budget, making them very attractive. This has led to an additional burden for the state. In some countries, like the Czech Republic and Slovakia, the premium given by state was the significant part of budget for buying or building a house. For this reason, Poland froze operations for collective saving scheme based on Bausparkassen model.

It must be noted that even in Germany, with the most developed collective savings scheme, it is only part of the sources of real estate financing. Typically, a loan from the collective savings scheme is used as downpayment, while the rest is obtained through mortgage financing from commercial or mortgage banks. The dominance of collective saving schemes in some transition economies may end with the development of mortgage loans markets.

As shown by Hager (2004), the situation of collective savings schemes in 2004 is presented in Table 1.

Table 1

The situation of collective saving schemes in 2004

Country	Year of first operation	Number of contracts (million)
Germany	1920	33,0
Austria	1925	5,0
Slovakia	1992	1,2
Czech Republic	1995	6,2
Croatia	1998	0,5
Hungary	1997	0,9

It should be noted delays in the application of these schemes in Central and Eastern European countries, but also that the number of agreements reached fairly quickly to levels comparable to countries where these schemes have been established in the interwar period.

2.4. Public funds

In some economies in transition, state provided directly mortgage loans by setting up a public fund for the purchase or construction of housing. Typical examples of such funds are Slovenian Housing Fund, established in 1991, and State Fund for Housing Development in Slovakia, founded in 1996. Slovenian Fund was designed to extend the time limits for granting mortgage loans for the purchase or construction of housing for individuals and fund social housing by local communities and non-profit organizations, low-cost rental housing for disadvantaged persons. The fund was also designed to pay premiums for collective saving schemes. Slovak Fund was designed primarily for the financing of construction of apartments, by providing loans and subsidies, but stopped working in late 2000, to ease the budgetary burden. Financed from the state budget, these funds have played a significant role in mortgage financing in those countries. The Slovenian Fund has financed about 40% of total mortgage loans in Slovenia. The Slovak Fund contributed with 36% of the total funding for housing between 1992 and 1999.

Many other economies in transition have established their own public funds to promote housing finance but with different functions and purposes. For example:

- The Estonian Housing Foundation was established by government decree in 1994 and has provided loans on favorable terms to well-defined social groups, including young families

and associations of owners of apartment buildings and owners and tenants in restituted housing privatization.

- Poland established Mortgage Fund in 1992 in cooperation with the World Bank and United States Agency for International Development (USAID), its primary function being to provide liquidity to commercial banks for double-indexed mortgage loans. National Housing Fund was created in 1995 to provide mortgage loans at preferential conditions for investors and non-profit organizations for social rental housing to disadvantaged people.

- General Support Fund for Construction and Supply of Housing in Lithuania, founded in 1992, provides subsidiess for mortgage loans provided by commercial banks for housing construction and purchase.

The popularity of public funds to promote housing policy and housing finance are due, in large part, to the income of countries with economies in transition from housing privatization during the process of economic transformations. While most of these public funds have been financed with revenues from privatization, often they require additional funding from the state budget.

In addition to the financing of privatization sources and contributions from the state budget, the Housing Fund of Slovenia also issued mortgage securities for self-financing.

2.5. Other real estate financing systems

In countries with advanced economies, insurance companies and pension funds often play an important role in the housing market and real estate financing market, not only as holders of mortgage securities and securitizated mortgage debts, but also as direct providers of mortgages, depending on national legislation and specific market conditions. In some countries with economies in transition, the insurance companies are involved in mortgage loans financing, but the volume of such funding is still small. With regard to private pension funds, which in Romania are called second pillar pension, they have recently been established, but promise to become major players in the market of real estate financing.

Another method of funding developed in recent years in economies in transition, including Romania, is the real estate leasing, with prevalent addressing to businesses. The most important peculiarity of this form of financing is that the real estate asset remains the property of the funder until the final installment payment and possible residual values payment. In general, the eligibility requirements for real estate leases are less restrictive than for mortgages and bank loans.

3. Conclusions

In the process of economic transition, the development of a coherent housing finance system is an important component of the transition from the system in which the state was responsible for providing housing in the old communist regimes to a system based on market mechanisms. Although there is an acute need for better housing and to give a higher quality of life, the housing market in countries with economies in transition remains at a low level, both because of the slow pace of construction and underdevelopment of real estate financing system.

Special efforts have been made in these countries to build different systems of housing finance and housing finance markets have experienced explosive growth. However, current market conditions are different in these countries, commercial banks and mortgage banks in Bulgaria, Poland, Romania and Hungary, as in the Baltic countries, mortgage markets are dominant, while collective savings and credit schemes dominate the markets in the Czech Republic and Slovakia. In Slovenia, the National Housing Fund, established by the State, is the most important promoter of mortgage loans. Whatever the structural differences, real estate financing systems in transition economies are underdeveloped. These markets are also characterized by different state subsidies systems for mortgage loans.

The development of real estate financing systems in transition economies faces various challenges. Among them: small part of the population eligible for mortgage loans, macroeconomic situation still unstabilized, inefficient financial markets, inadequate legal framework for housing finance systems. None of these problems has a quick and easy solution. Solving them requires sustained and well-intentioned efforts to improve economic transformation strategies. Developments in recent years, however, are encouraging. Macroeconomic stabilization and the legislative framework have seen marked improvements, leading to an expansion and a refinement of housing finance systems. Continue efforts, especially in improving financial systems, improving the legislative framework and establish stronger measures to enfoce laws, will lead to functional and efficient real estate financing systems. Integration of many countries with economies in transition in the European Union will accelerate these efforts.

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SECTION III

PUBLIC FINANCE

CRITICAL ANALYSIS OF THE CURRENT STATUS OF INTERNAL AUDIT IN PUBLIC ADMINISTRATION

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Abstract. *Public internal audit has developed over the years, shifting from a function based on information to a more practical one, a risk-based function. Theoretically, the internal public audit applies to all central and local public institutions, auditors assuring and advising managers for judicious management of revenue and public expenditure, thereby improving their business, issuing recommendations and objectives based on the irregularities discovered.*

Through the completed audits, auditors should help public institutions to meet their objectives through a gradual and methodical approach, by assessing and recommending more efficient and effective public management.

Keywords: public internal audit; effectiveness; efficiency; control; professionalism.

JEL Codes: M42, H83.
REL Codes: 14J, 13G.

1. Introduction

Internal public audit has its own work means in development the methodology of work having audit functions, namely the assessment of internal control. However, internal audit has as strength the risk assessment.

IIA (The Institute of Internal Auditors) gave a first original definition of internal auditing: Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes (Bolchi, 2009, p. 47).

Internal public audit is exercised over all activities in a public entity, including the activities of subordinates on the formation and use of public funds and public property management. Whatever type of audit is being conducted, public auditors must put together in their work file sufficient documents with probative value, especially with regard to the planning documents audited, the auditor's work and findings (Ghita, Vasile, Smith, 2004, pp. 31-32).

As regards the theoretical basis, public internal audit applies to all central and local public institutions. Also, it gives assurance and advice to public administration bodies for judicious management of revenue and public expenditure, thereby improving their business. In this context, it issues objective and fundamental recommendations to correct the found irregularities, stating the consequences that must be faced by those who are guilty.

Where weaknesses are found in the work, the auditor will prepare a schedule of implementation of recommendations, aiming also if the stipulated measures were respected.

2. The internal audit regulations

Starting with January 1, 2009 new standards came into force of professional practice of internal audit, being prepared by the Institute of Internal Auditors. These provide for the "control" section no. 2120, which became no. 2130, the following: internal audit activity should assist the organization in maintaining effective controls by evaluating their

effectiveness and efficiency and by promoting continuous improvement (According to The Institute website of Internal Auditors Communication – IIA http://www.-theiia.org/guidance/ slandards-and-guidance/).

- Standard no. 2120.A1, now no. 2130.Al states: "The internal audit activity must evaluate the adequacy and effectiveness of controls in responding to risks within the organization's governance, operations, and information systems regarding the:
- Reliability and integrity of financial and operational information;
- Effectiveness and efficiency of operations;
- Safeguarding of assets; and
- Compliance with laws, regulations, and contracts."

Standard no. 2120.A2 turned in no. 2130.A2, states: "Internal auditors should ascertain the extent to which operating and program goals and objectives have been established and conform to those of the organization."

Standard no. 2120.A3 turned in no. 2130.A3, requires: "Internal auditors should review operations and programs to ascertain the extent to which results are consistent with established goals and objectives to determine whether operations and programs are being implemented or performed as intended."

Standard no. 2120.A4 turned in no. 2210.A3, states: „Adequate criteria are needed to evaluate controls. Internal auditors must ascertain the extent to which management has established adequate criteria to determine whether objectives and goals have been accomplished. If adequate, internal auditors must use such criteria in their evaluation. If inadequate, internal auditors must work with management to develop appropriate evaluation criteria".

Standard no. 2120.C1 turned in no. 2130.C1, states: „During consulting engagements, internal auditors must address controls consistent with the engagement's objectives and be alert to significant control issues" (Bolchi, 2009, pp. 34-35).

Standard no. 2120.C2 turned in no. 2130.C2, states: „Internal auditors must incorporate knowledge of controls gained from consulting engagements into evaluation of the organization's control processes."

Regarding the role of public internal auditor with regard to internal control systems is different from that of management as it covers:

- Estimate/assessment of the area with the highest risk, through the objective control considerations;
- Professional verification of systems that attract the highest risk;
- Advising management; we consider the functionality of consequences of the internal control so as to determine the objectives of the control system;
- Last but not least, the recommendation of any necessary improvements to strengthen controls, in the same time with denouncing and clarifying the incident risks, so that the first action does not fail.

According to Law no. 672/2002 on public internal audit (Official Gazette No. 953/ 24.12.2002) and the Ordinance of the Public Finances Ministry No. 38/2003 for the approval of General Norms for the exercise of the internal audit activity (Official Gazette No. 130 Bis/ 27.02.2003), managers of all public institutions must establish organizational and operational framework necessary for carrying out internal audit.

Considering the above, there are exempt from the provisions stipulated small public institutions performing an annual budget of up to ROL equivalent of 100,000 Euros over a period of three consecutive years. Also, the institutions subordinated to the management of next higher hierarchical level for which was issued the decision that the internal audit department is unnecessary.

We stipulate that authorizing the unnecesarity of internal audit department is characteristic of secondary or tertiary authorizing officer.

However, municipal/town/village mayors which have the chief quality officer and exceeded the threshold of 100,000 euros annually for three consecutive years have the obligation to establish internal audit department.

As concerns the internal audit at local public entities, it concerns both draft budgets and budget execution.

Internal audit is required to be hold to the principal chief quality officers, these ones considering the opportunity of establishing their own internal audit structures in the public institutions subordinated (Huțupaşu, Vasiliu, 2007, p. 96).

3. Current status of auditors

3.1. Lack of specialized personnel

Considering that legislative provision, all local public institutions have endorsed this legislation and have provided in the organizational structure the features of this department/office for auditors, although it is true that in most cases, the public auditor function is not occupied.

Naturally, the question arises: Why nobody is interested to engage in such posts? The situation in Romania, in 2010, gives us the answer without too much thinking: people specializing in this field are not interested to work in a local public institution because of very low wages.

On the contrary, where there is a position occupied by the auditor, that is a single worker, there were found superficial reports, due to too much work, and/or lack of development concerning the entity's own rules. In the same time, auditors have major problems with documentation, acquisition and application of standards and lack of systems. Also, it should be stipulated the fact that no steps are respected in the development of such a task.

The recommendation from the international auditing standards is that the number of internal auditors must be of at least three specialists in order to ensure a minimum level of activities developed in internal audit departments.

3.2. Concerns

One of the concerns is that of ineffective or unsatisfying internal control. Thus, there may be a powerful set of appropriate internal controls, only that they fail to operate optimally. One example, which we are presenting, inability to timely review the financial and tax documents and providing rapid corrective measures not only fails to correct an existing error, but will certainly lead to other errors.

If the error is caused by a system, conclusively, it will appear again when the circumstances will be resumed and if this error has been identified and reported, there must be no belief that it will be covered, since there is a possibility of recurrence, this time generating a loss.

The same result may exist when management fails to delegate some of its functions in order not to be crowded with work, thus: does not consult with colleagues or subordinates; does not mandate the development of procedures governing the work of the institution's structure; does not insert best practice policies; does not implement their management system or a system of measures to be taken when violations occur. All such negligence could encourage other such violations or even infringement extension, since employees will not stop in the future, knowing that there are no repercussions.

These law cases are alarming signals for the internal auditor (rumors, records, facets, aspects of the problems) that may lead to a report of assessment of any risks that may exist, and thus to their suppression.

One of the major risks facing the public internal audit and which tends to distort the effects generated by the very substance of its management is the tendency to change the purpose of internal auditing and its objectives, the consequence being that it turns into a trivial form without content control and legal support.

Given that out of ignorance or lack of qualified staff appointed to carry out certain forms of control, management improperly used the IAC in such missions, it is clear that the purpose for which it was created is compromised.

Another problem that public internal audit is facing nowadays in Romania is the high degree of involvement of internal audit structures belonging to senior officers in junior officers' audit.

Internal public audit is exercised over all activities in a public entity, including audit over the formation and use of public funds and public property management of subordinate entities. The above mentioned fact generated and can generate a lot of confusion and arbitrary interpretations.

The legal provision invoked confers to the principal officer the right to audit the subordinate entities, even if the respective line officers have their own internal audit structures.

If missions carried out had only concerned the assessment of internal audit activities of subordinate loan officers, they would be place in a framework of full normality. It is natural for the senior officer to know whether the subordinate's internal audit activity is effective and is within the legislative framework, providing assurance and advice for the proper management of public revenue and expenditure management. But if the senior officer has to conduct his own internal audit structures in audit missions, through which his entity is subject to audit in terms of training and use of public funds, surely we are witnessing a substitution of the power (Togoe, 2007, p. 197).

3.3. Professional standards

Internal auditor in the action must show professionalism and overall vision beyond what he finds, taking into account:

- Legislation and its implementation;
- The amount of money paid for repetitive operations, routine and unusual or repeated at intervals of time, to determine the level of risk;
- Risk of error due to human factor can not be removed (inadvertently, misinterpretation of a legislative act, neglect, etc.);
- Cyclical aspects of internal and external environment of the audited institution;
- Lack of experience due to the phenomenon emphasised by staff turnover;
- Tacit agreements under influence or pressure between different people within the entity which lead to cover certain anomalies, deviations of a financial nature, damages;
- Abuse of decision-makers who decide to perform operations with negative financial impact on public funds;
- Abuse against the interests of the institution by written well-known procedures (signature aware), but not implemented or outdated;
- Auditor's detection risk when applying the method of the sample;
- Risks appearing in weak points after completing the mission (eg ability to collect local taxes increases during the mission and after its completing, those responsible for, manifest disregard as there is no reward system to include incentives and penalties of financial or non-financial character).

Final conclusions is that the internal auditor skills produce real benefits for the entity, through a systematic evaluation based on audit standards and best practices, policies, procedures and operations carried out by the entity.

Also, internal audit, through the activities carried out, adds an extra value, both by evaluating the internal control system and risk analysis associated with auditable activities and the recommendations contained in the report prepared and submitted in order to ensure achievement of objectives of the institution.

The receiver of internal audit reports may consider or not the recommendations of auditors, but they know that, when they disregard them, they will assume some risks (Chita, 2006, p. 31).

4. Reorganization of the internal audit system

In the proposals of reorganisation of all audit departments within municipalities, we consider their transfer and the creation of a territorial DGFP internal audit department as follows:

- The audit department must be placed on a hierarchical level subordinated to the coordinating director of the regional public entity;
- In the mean time, the independence of auditors must also be stipulated by appropriate and effective rules and regulations and also by efficient monitoring;
- Strict compliance with the rules, so that: at least every three years each activity should be audited to ensure proper functionality both to revenue and expenditure of public funds;
- Competence must be a strong ally of combating inefficiency by promoting people who have training and qualified experience; with the ability to create a leading professional body;
- Allowed staff to be composed of experts with studies on different activities specific to municipalities, to make internal audit quality reports.

In this context, international practice recommends that the number of internal auditors are not more than three to ensure a minimum exchange, but is considered a structure made up of seven experts would be sufficient for the internal audit activity to be effective (Dobre, 2010, p. 41).

The essential requirement for the internal audit activity organization is to meet the needs of control and the overall objectives of municipalities in order to create added value.

It is also necessary to align the general rules to specific local public institutions to ensure a uniform mechanism regarding compliance with the steps in carrying out the mission.

On the contrary, without qualified specialist staff to follow the constitution, registration and use of allocated funds (revenue source, the manner in which to record all income payments; if there have been made payments directly from revenue; how money was spent; if the expense was necessary, if it was economic, opportune, if it is trusted, etc.). all components of the local public administration remain inert, in the year 2010.

In the orientation of the internal audit, it must be primarily focused on internal control in order to discover weaknesses and vulnerabilities in the work and less on permanent and excessive control, where there are written followed procedures; separation of staff duties, competent legal service, operational crosschecking between compartments, qualified staff targeting competence and morality.

In the same time, professional competence is considering a policy of continuous training, in order to keep up with new changes that occur and should be applied.

Internal audit should consider the connection and constructive manner, and audited entities should recognize that the auditors are with them to correct some irregularities arising from various reasons:

- Misinterpretation of the law;
- Large volume of work;
- Superficiality of different works;
- Lack of attention, fatigue etc.

Some of the examples below are important, as it follows: if the internal auditors discovered a double payment or prejudice and then take steps to recover funds by management, in this case we can say that the internal audit function adds financial value; the value of an object is oversized - in that case, management will form a committee of specialists who will review the analysis that objective both qualitatively and financially.

Auditors must demonstrate in their work, findings that were financial in nature, thus proving that they exercise their profession properly.

One of the fundamental tasks of the public internal auditor is that he should be concerned about the condition of internal control of public authority/organization. It can help to correct the reorganization or the necessary infrastructure in this area (the control), giving it right direction to operating. On the contrary, operating according to the Law, it should neither be involved in carrying out activities that it might audit, nor in the development and deployment of national internal control of public entities; on the contrary, it enter one of the cases of incompatibility of which can not escape until after a period of three years (according to art. 20. par. 5).

5. Conclusions

Like any new activity, on the one hand, the internal audit reveals a number of failures resulting in some of the content of normative acts, and on the other hand, the confrontation with the realities of a transition economy that seems endless. In practice there appear a number of deviations from the normative framework, which if not solved, can lead to general control environmental degradation and can have as an effect the diversion of public internal audit from its' aim and objectives for which it was created.

We can therefore conclude that the internal audit helps entities meet their goals, which is accomplished through a methodical and systematic organization of the audit process, aimed at improving control and management processes at different times. Thus, internal audit, in addition to its' general objectives, must consider the following elements:

- The existence of discrepancies between the different levels of organization;
- The existence of economic pressures which discourage people to work to their full potential.

The internal audit activity is a scheduled task that is performed in accordance with standards to produce results and which runs on a schedule where all auditor' ideas will be combined in a constructive report, which will represent a benefit for the institution.

In the same context, the internal audit should be conducted regularly, and consider all aspects, not only positive and allowed things. This one must be organized and planned so as to lead to improved internal control and management processes. The audit is a corollary of the line management, so that this one can improve its operational management and risk analysis activity.

As far as the internal audit findings and recommendations are concerned, they are also useful and necessary to the management of the audited areas, particularly with regard to potential improvements in risk management process, which the auditor will assess again later on, which will ensure and guarantee value to the institution.

The auditor does not audit people, but systems, entities, programs, activities. Thus, audit reports do not contain names and facts; however internal audit has implications for people. If fraud is discovered, the leaders of these activities will meet the law, not before being inspected by the inspection department.

Concluding the above stated, the public internal audit, by its' tracking work performed through the reporting structures of public institutions, needs to verify and improve their work: by helping managers; through the effectiveness control in meeting the set objectives and the economy of resource; the improvement of activity and system functioning; through legislative compliance by reporting entity's activities and, last but not least, through a fair presentation of the main issues, conclusions and proposals for improvement.

Thus, we propose:

- Making of a territorial DGFP internal audit departments specialized in mayors auditing or the creation of "regional internal audit departments" at mayors level of larger towns or villages;

- Ensuring the necessary human resources for the proper conduct of internal audit activity, according to the communautaire acquis;
- Training of trainers for the performance audit and its implementation in local structures;
- Continuing professional development;
- Developing its own procedural rules to ensure a uniform mechanism regarding compliance with the steps in carrying out the mission;
- Approval of rules of procedure by the Central Unit for Harmonization for Public Internal Audit (UCAAPI);
- Letting UCAAPI know both the lack of implementing of the recommendations by some local institutions.

Internal audit can not act as an efficient and effective agent of change in the public institutions as long as it is unable to self-improve, that is to be its own change agent. In other words, internal audit can not help public institutions advance as long as he himself did not adapt his procedures, methods, concepts, attitudes and expectations of management requirements of public entities. Thus, on the one hand, we can talk about a permanent auto-evaluation of the internal audit quality, and on the other hand, about the need for an "audit" of internal audit, carried out by competent body, on a national plan, by UCAAPI, or by audit committees which we hope to be established in the public entities with the rank of chief officer.

From experience, we can say that there are still significant reserves to improve, modify, update, in other words to change the current system of internal audit, both in terms of efficacy and efficiency.

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EMPIRICAL EVIDENCES CONCERNING CORRUPTION IN LOCAL PUBLIC ADMINISTRATION

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Abstract. *Corruption is a widely used concept lately in Romania and not only, the effective fight against this phenomenon being considered a precondition of the existence of the rule of law and an indicator of good governance. In terms of corruption vulnerability and its social impact, the local administration system remains one of the most sensitive areas. The need to design and implement a set of appropriate policies for control of corruption in local public administration has become increasingly imperative, the main desire being to create a healthy system. This article aims to identify how decentralization and corruption tend to relate.*

Keywords: corruption; decentralization; local public administration; mitigation.

JEL Code: D73.
REL Code: 13G.

1. Introduction

The concept of corruption is defined by several international organizations, ONU, EU and NGOs such as Transparency International, which have as their main mission or carry out programs to prevent and combat corruption. Thus, as defined by the Transparency International, corruption is "the misuse of entrusted power for private gain, whether in the public or private sector, in the scope of satisfying some personal or group interests" (Alistar, Moinescu, Stanescu, 2006, p. 4). According to National Anti-Corruption Strategy 2005-2007, corruption is "systematic deviation from the principles of impartiality and equity, that should be the basis of the functioning of the public administration, which state that the public assets are universally, equitably and equally distributed and their substitution with practices that generate the allocation to certain individuals or groups of a disproportionate part of the public assets compared to their contribution" (National Anticorruption Strategy 2005-2007, Appendix no. 1 GD. 231/2005).

In all official documents or NGOs, with some slightly differences and nuances, corruption is presented as a major negative point, as a "disease" of the Romanian society. Corruption undermines the effectiveness and legitimacy of state institutions and limits economic development of Romania. In addition, corruption perception shows a low degree of public trust towards the institutions of state (National Strategy on Preventing and Combating corruption in the vulnerable sectors and local public administration (2008-2010), 2008, p. 10). In other words, corruption is a kind of "seismograph" which measures and evaluates the legality and morality of the state society (Banciu, 2007, p. 244).

A striking example is given by the progress report concerning Accompanying measures for the accession of Romania, the European Commission stresses that the legal field to fight corruption is quite well developed but its application remains deficient. There is still a clear weakness translating these intentions into results, and progress in the short period of time that has elapsed since the establishment of cooperation mechanism and verification is still insufficient. Deeply rooted problems, notably corruption, require the irreversible establishment and effective functioning of structures at law enforcement level, capable of sending strong dissuasive signals.

Our approach is intended to be built as an accurate research of local public system of corruption, strongly correlated with the phenomenon of decentralization, thus having a fundamental basis for formulating a series of proposals to mitigate this phenomenon.

This article, built as a theoretical approach that focuses on conceptual issues and reviews the general state of knowledge of the subject area, aims to contribute to this debate precisely from this perspective. This paper is an overview of key theoretical dispute positions over the effects of decentralization and empirical evidence that supports them, afterwards presenting the institutional elements of decentralization and corruption in Romania. The paper ends with a set of conclusions on the relationship between decentralization and corruption seen through the Romanian example, being proposed a series of measures to mitigate corruption at local level.

2. Decentralization and corruption

What is the relationship between corruption and decentralization? Does decentralization foster corruption?

Decentralization (promoted in parallel with a certain dose of administrative deconcentration of central administration) has shown that it can sometimes resolve local decision problems, has made easier the access to information of local nature, has added efficiency to services and has made local people feel better represented from the political point of view. But sometimes decentralization proved itself a source of new problems: "widening disparities between rich and poor communities, difficult coordination and fiscal indiscipline" (Tanzi, 1995, pp. 295-316). But especially since through decentralization are being exponentially multiplied centers of political decision, this complex phenomenon has raised concerns about the possibility of worsening corruption in public institutions by capturing local elites.

In fact, I believe that the impact on the level of corruption is one of the most interesting aspects of the decentralization process, "still under investigation" (Matei, Popa, 2010, p. 260).

Decentralization promoters usually consider among its expected benefits: preventing corruption, this one being for them an argument to speed up the process. Often, it is assumed that the mere transfer of powers and resources from the center to other levels of administration will solve the problem.

On the one hand, it is argued that competition, purchaser-provider split, professional management, quality or performance measurement, and transparency can help to prevent corruption. This is designed so as to be in contrast with the traditional bureaucratic model, which, according to supporters of decentralization, "encourages corruption" (Von Maravic, 2007, p. 23). But reality has proved more complicated. Often, decentralization seems to be accompanied by a multiplication of cases of corruption and a growing public concern over this phenomenon. The main criticism is that decentralisation focuses solely on the economy, efficiency and effectiveness of administrative systems and thereby neglects variables including probity, equality, process-orientation and accountability (Yesilkagit, de Vries, 2002, p. 580, Gregory, 2002, p. 17).

It is also argued that decentralization involves greater responsibilities for managers and reducing hierarchical control and supervision. In addition, the introduction of market and competitiveness mechanisms increase, at first, interaction between the public and the private, and secondly, disperse boundary between what is public and what is private. Now, public managers are more exposed than before to conflicts of interest. Furthermore, recruitment from the private sector alters bureaucratic culture. Therefore, it is argued that these issues lead to a corrupt public sector. Therefore, some recent comparative studies have even concluded that, overall, more decentralization means more corruption (Hongbin, Treisman, 2004, pp. 819-43).

Currently, the dispute is ongoing and the two sides seem balanced. What remains to be done is to go beyond quantitative analysis that aims to definitively prove the nature of the

relationship between these two variables. It is possible that the influence of decentralization on corruption varies according to specific local conditions and just exploring in this direction and identifying the factors that determine the nature of this influence is something interesting to do. So, on the one hand, there are the advantages of decentralization and, on the other hand, the danger that local elite capture institutions, especially in societies with strong culture particularities. The balance depends on various local conditions, which are to be explored case by case.

Does decentralization reduce corruption in general? An overview look

There are many studies that argue that the promise of decentralization to bring more accountability and transparency in the political process is difficult to achieve. If local officials come more often in contact with citizens, this does not necessarily mean that the officials will better represent their interests, as it is usually argued. On the contrary: in particular environments, or where it dominates a defective trial of public decision-making (policy by default syndrome) it is actually encouraging even more interaction personalisation and this can reduce both professionalism and neutrality of public services (Tanzi, 1995, p. 296). Customization of these relationships is becoming thus, a good ground for corruption, as officials come to be more attentive to individual needs of narrow territorial redistribution coalitions than the general public interest. Prud'homme lists several reasons why this happens: (Prud'homme, 2005, pp. 202-203):

– The influence of local stakeholders increases, since they largely control local public life in particulary societies; this idea is supported by a high degree of political influence of the local elite in traditional communities, including turnout and results;

– There is an empirical fact that local elected officials, in general, tend to have longer terms, being re-elected more frequently, when the degree of decentralization is greater;

– Stakes of local political game is greater when resource control is decentralized;

– The possibility of control diminishes through press disclosure and moral pressure from the public, because political actors are now more numerous and public attention is a scarce resource;

– The possibility of central independent monitoring agencies is diminished.

The last point is hardly a trivial one: an analysis on a program of grants for local communities meant for construction of roads, allocated by the Indonesian local authorities, indicates that the audit of central institutions – or even the possibility of a full audit announced in advance – discourages theft fund more than can do it mechanisms which involve the local community to supervise the use of funds, which is a central concept of participatory democracy, often encouraged by international institutions for assistance.

Treisman supports the above conclusions: he undertakes a statistical analysis of 85 states out of which, it results that federal states are perceived as more corrupt than the average. This is because, in general (Treisman, 2000, pp. 401-403):

– they are bigger;

– tend to have control authorities and law enforcement also stratified on multiple levels, both at the local and center and therefore easier to undergo “asymmetric pressure”; in addition, overlapping jurisdictions of law enforcement creates incentives for ”excessive taking” to get undeserved benefits;

– tend to have an upper house of parliament with veto power over decisions, chosen on a regional basis (which increases the likelihood that local politicians will develop a special relationship with these representatives at the center).

Political decentralization seems to be a factor of corruption in the economic reform in Russia, but not in China. The authors analyze the role of local authorities compared the two cases and conclude that, in China it was a beneficial process of industrial restructuring, while in Russia has been generally negative. Over-taxation, plus abuse and uncoordinated regulations introduced from local initiative should be at least partly responsible for distorting

the economic environment and the proliferation of corruption in the latter case. The difference between the two situations is therefore attributed to the authors of the decentralization policy component, present in Russia, but absent in China.

Contradicting Treisman, other comparative statistical studies identify a negative correlation between the level of decentralization of a country and the perceived level of corruption. Fishman and Gatti measured decentralization by the percentage of public resources spent by local budgets (Fishman, Gatti, 2002, p. 25) (fiscal decentralization) and for corruption, used three sets of data, all being results of surveys of perception. The authors say their results show that the decentralization of public expenditure is correlated significantly with lower perceived levels of corruption, even if it is controlled the influence of other factors such as those mentioned by Treisman. Fiscal decentralization seems to be associated with better public management, understood as the political participation of citizens, transparency of public institutions, social equity and lower levels of corruption perceived by the public. Resource allocation tends to be better on long term, particularly in developing countries where the centralization was a disadvantage for social sectors funding, in particular, sectors such as: education and health (where corruption, although present, usually takes more benign forms).

So there are, at least, as many counterexamples, to the cases mentioned, when decision and local resources transfer actually increases transparency and makes the political system more responsible to the citizen. Political competition encourages innovation and transfer of good practices and, at least in some areas (though not all) people are actually better informed in matters of local interest. As such, it is possible that even what seems at first glance a proliferation of corruption, generated by decentralization is only increased public interest and an increase of the general level of familiarity with the political mechanism.

It is true that decentralization increases the number of centers of decision and makes direct supervision more difficult. But on the other hand, it reduces the benefits associated with the act of corruption by reducing the number of those involved in a particular decision, which reduces the number of ”thresholds” that must be overcome by dishonest means. Analyzing all these factors, Wildasin (1995, p. 324) concluded that local officials which have well-defined tasks are less likely to engage in acts of great corruption, unlike a bushy and untransparent central bureaucracy. He even launched the idea that decentralization reduces corruption in general, opposed to devolution, which can make it grow.

In short, there is a long list of factors that can affect the relationship between corruption and decentralization, in both directions. On the one hand, decentralization may reduce corruption because:

- Local elected officials know better than central officials the real needs of the community's, so is less likely to act only as agents complying tasks drawn from the center, whose utility they even doubt (fertile ground for cynicism and corruption)

- Other way round, under certain conditions, citizens know more about decision-making process and get more involved.

- There is a competition among local governments: the quality package of fees and services provided (citizens can move to choose the package that suits them best), the image of local government more or less clean, there is created a moral pressure for the most corrupt administrations to act and remedy the situation

- Promoted in judicious conjunction with devolution (but often at the expense of the latter), decentralization can lead to limitation of action power of the bureaucratic extensions in the territory of the central public management – typically the most opaque and unresponsive of the central public management;

On the other hand, decentralization may lead to the proliferation of corruption, because:

- Where information and civic participation costs are high and tradition weak in this sense, people might know more about what happens at the center than at the local level; few existing civic skills being focused in this direction;

- Multiplication of decision centers, coupled with the absence or weakness of horizontal control mechanisms between public institutions (horizontal accountability) may encourage discretionary behavior and law breaking by local political elites;

- Where there are several intermediate levels of government between central and local communities (regions, districts, etc.) is difficult to achieve an appropriate balance of power between levels of government so that the intermediate state may not exercise their newly acquired powers abusevely at the expense of local administration (local authority itself);

- Where a house of the national parliament is elected on the explicit territorial principles (to represent the regions, districts, etc.), and these districts coincide with strong intermediate levels of government, there are big opportunities to make obscure coalition of interests between regional leaders and central representatives.

Further on, we analyze the situation in Romania as far as the process of decentralization is concerned and we try to see which of the factors outlined above have a decisive influence in shaping the decentralization-corruption relationship.

3. Financial decentralization process in Romania

When decentralization began, immediately after 1989, regarded as a compulsory stage on the "road to Europe", the historical experience of local self-administration was neither too rich nor too useful in the new context.

As an important element of fiscal decentralization it has been introduced a system of sharing of personal income tax collected in a given constituency between appropriate local and county budgets, and national level. In 1997-1998 there were put in place key reforms designed to completely change the structure of fiscal interadministrative relations and national and local finances. The proportion of public expenditure relating to local government has grown, as they have increased their level of income - namely, resources collected and used without central government intervention. In parallel, the local powers have become wider, both in terms of general management functions and partly, in important sectors such as investment, education, social protection. In short, there have been real steps towards real decentralization (devolution).

Also, to reduce to some extent inevitable disparities that arise between rich and poor communities when local autonomy widens it was created a balancing mechanism: an automatic transfer, based on mathematical formulas that define a tax that is collected as part of the equalization fund and distribute it to local governments inversely with their own resources. So that, certain transfers which before were operated discretionary, their allocation being decided by central government is now becoing predictable and transparent – or at least, it should be according to law. I say this because there are a substantial number of transfers from central to local public administration which wre completely opaque and discretionary. This happens with the money coming from "special funds" off-budget (fund roads, social housing ANL) and those distributed by the various ministries in the cart programs: rehabilitation of small infrastructure, environmental programs, etc. Generally they are specified purpose funds used for various investments.

Whether it is all about the overall amount of balancing funds, or the specified purpose funds, opacity and lack of criteria for distribution (or their failure when they exist) are a fertile ground for the proliferation of local corruption. This is not about petty bribery corruption, but the use of budgetary allocations on a discretionary basis to build patronage networks either vertically, between levels of government theoretically independent and not subordinated, or horizontally, even when lack of transparency and ex-post prevent a minimum of scrutiny by the citizens, and those levels of public administration which enjoy a large power of decision, use it to appropriate for themselves resources and use them in preferential relationship with certain private partners.

In other words, we are talking here about a local form of state capturing which, beyond the fact that it is harmful in itself, maintains and perpetuates the climate conducive to stop

petty bribery. It's hard to run a credible campaign for the eradication of this latter phenomenon, as long as, possible initiators, local political leaders are perceived as being involved in operations in the same way, but on a much larger scale. Although such phenomena occur on all administrative levels of the Romanian state, it can be argued that, for the Romanian case, the intermediate level (county councils) plays a special role:

a) Most transfers are made in two steps, first passing through the county budget. The county councils have, in practice, much more power than in theory, exercising more power through informal means than formal rules pretend.

b) There is no precedent in which any county board has been penalized for the failure of what, in principle, is a paragraph in the law (the formula for allocation of equalization funds to localities), which shows that these informal rules are widely accepted in the system.

c) County councils tend to be more politically homogeneous, reproducing the structure resulting from national elections better than from local elections (or than the mass of mayors); so they have a closer political relationship with the central authority, although, once again, this is not provided anywhere in the constitutional arrangements.

d) Romanian administrative tradition tolerate a degree of paternalism of the central authority to the local ones; prefects are the most important mechanism for this type of control, and they are also in a privileged relationship with the informal leadership of county councils; in fact, the prefects are the ones who should initiate administrative sanctions referred to above (b), but do not.

It comes to the paradoxical situation that, although, opinion polls say that people have greater trust in local institutions than in central ones, and that soon they would prefer that any additional resources collected through taxation to go to the first one, the most visible form of corruption in Romania today is related to the “local barons”. In most cases they are politicians elected in the intermediate level (county) and leaders of interest groups closely associated with them.

4. Proposals to reduce corruption

In conclusion, corruption remains, at the level of 2010, an extended phenomenon that affects all structures of society despite efforts to reduce it.

Reiterating the above stated ideas, one of the fundamental problems which leads to dilution of the expected impact of the measures against corruption is the absence of detailed studies and analysis on each sector, which could reveal, based on reliable indicators, the magnitude of the phenomenon. Such documents offer the possibility to develop and implement effective measures to prevent and combat corruption.

Moreover, the existing researches do not contain a description of risk factors and issues based on relevant indicators. This situation contributes negatively to the objective evaluation of the current situation and consequently to effectively implementation of anti-corruption measures on long-term.

To have results with real impact in preventing and combating corruption and to improve public perception of the phenomenon, it is necessary that measures which will be taken to have a solid and objective foundation.

Further on, we can see that the measures taken by the year 2010, based on documents made by some government institutions have led in some cases to an increase in transparency and improve public service quality offered to citizens.

To talk about specific proposals to reduce corruption at local government level, we must first identify risk factors that foster corruption, and these are:

- Unfair and uncompetitive salaries;
- Lack of an alternative motivation;
- Lack of a mechanism to ensure an objective process documents;
- Lack of information for the public on the necessary documents, deadlines and procedures developed by the administration;

- Difficulty to attract and retain qualified personnel in the system;
- Transparency lack in decision-making procedures.

In this context of risk factors have generated the following problems:

- Very high time response to requests from citizens;
- Providing services and making benefits of them;
- Discriminatory treatment of citizens;
- Lack of firmness and consistency in applying the law;

According to figures from local public administration, is looks that there are similar risk factors, which, once materialized, generate specific problems for each sector. From this finding it results the necessity of an integrated approach to anti-corruption policies, both for the legislative and institutional framework, and by implementing tools and best practices at local public administration level and its vulnerable sectors.

Mitigation proposals, their implementing strategies, concern mainly improving human resources management and control functions. In this light, special emphasis will be placed on informing and raising awareness about the medium and long term effects that will affect local public administration (National strategy on preventing and combating corruption in local government 2008-2010).

This will aim to:

1. Raising awareness and public awareness of corruption risks, namely to promote dialogue with civil society by intensifying its involvement in projects and programs of awareness of risks associated with corruption.
2. Increased transparency in public services, namely: development of tools and mechanisms to ensure transparency of public institutions; implementation and dissemination of standards for quality, of terms and provision of public services; improve public communication and collaboration between and within institutional; use of new information technologies to enhance the transparency of public services.
3. Development of human resources management to reduce risks associated with the phenomenon of corruption in an effort to increase transparency on vacancy advertising contests organization, conditions of recruitment and staff selection;
4. Simplification of administrative procedures to improve public services, with the following directions: analysis and review of internal procedures to eliminate overlapping and redundant procedures in each local authority; development and implementation of systems to measure satisfaction regarding the quality; conditions and local public service delivery deadlines.

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THE OPPORTUNITY TO IDENTIFY A SINGLE EUROPEAN TAX. A COMPREHENSIVE ANALYSIS

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Abstract. *This paper proposes a comprehensive approach to identify a single tax on whether European, on the premise that harmonization is a priority for the union budget and fiscal policy. Although it is constantly in discussions of European officials, however, configuring a single tax idea remains an ineffective approach. On the one hand, it is difficult to establish a tax at the 27 Member States capable to meet the budgetary criteria of efficiency and equity and to accomplish reasonable the principle of contributions cumulatively, on the other hand, would generate a higher level of control over budgetary decision-union act and would provide transparency on how the union budget resource management.*

Keywords: european tax; tax harmonization; union budget; fiscal policy; financial resources.

JEL Codes: H21, H27, K34.
REL Codes: 13F, 20J, 5D.

1. Introduction

The idea of establishing a single European tax has generated much debate on the political, social and academic fields. Tax harmonization in the EU Member States is a complex process that involves both an alignment of the regulatory framework and fiscal and budgetary policies measures. At the beginning of the European construction, the fiscal policy has not been a priority, each Member States setting their own rules according to their specificity, subject to the principles of sovereignty and autonomy. In the first 12 years of the European Economic Community, the budget was developed entirely on the direct contributions of Member States. Since 1970 the budget is financed by the Community's own resources is income as agreed by Member States of Community law resources.

Community own resources system, established in 1970 by the Council of Ministers meeting in Luxembourg, had two elements, which will be found later under the name of traditional resources. This category includes customs duties on goods imported from outside the Community, by common external tariff; variable levies on imports of agricultural products (replace customs duties from 1 July 1995, following agreements signed during the Uruguay Round). A third resource, included by many authors in the same system, was introduced in 1979. It is about resource VAT collected in each of the Member States on the basis of a fee (charged VAT applied by each Member State, the top 1% respectively, in 1979, increased to 1.4% in 1986, then decreased to a 1% between 1995 and 1999). Also, for the years 2002 and 2004 was made for a minimal fee reduction to 0.75% and 0.5% in 2004.

Introduction *Delors package* had the necessary resources to provide the Community between 1988 and 1992. Reform has maintained its own resources from customs duties and agricultural levies on products imported variables plus the proposed threshold be maintained at 1.4% of the resources accruing from VAT. The Delors package is proposed to add new resources, the fourth community resource. This new resource, created in 1988, would be a variable, depending on the possibilities of each country. She had to provide the revenues needed to cover additional expenses, so that total resources amount to a maximum of 1.2% of GDP of the European Union.

The overall effect sought by placing fourth resource based on GDP was to make the tax system more progressive in European Union, linking the contribution of each Member State's level of prosperity.

2. The structure of the EU budget resources

The structure of the EU budget resources include contribution:

- from agricultural levies (customs duties levied on imports of agricultural products within the common market organization) and fees and other charges provided for under the common organization of markets for sugar and glucose;
- from customs duties common customs tariff of the customs value of imported goods;
- from the collection of VAT revenue as a share of the volume of VAT charged in the Member States;
- from additional resource on GNP, resulting from the application of a percentage of GNP of all Member States, the amount fixed each year under the budget procedure, depending on the level of other revenue budget. This resource through ensure budget balance, so that the total revenue could cover the total level of expenditure shown in a given budget year.

The volume of funds included in the Community budget has grown steadily as new priorities emerged. Greece, Ireland, Portugal and Spain are the beneficiaries of the fund, which became operational after the Treaty of Maastricht. He was introduced to these countries provide financial support in carrying out projects, especially infrastructure.

The idea of creating a European tax is not new: Article 49 of the Treaty on European Coal and Steel Community established the jurisdiction of the High Authority to procure financial resources necessary to implement the tasks for which it was created. In 1978, the Commission proposed the establishment of alcohol and tobacco taxes on the entire European Community.

3. Arguments for and against the single European tax

However the debates over creating a single European tax are far from being completed with a resolution acceptable to Member States of the European Union. A single European tax would require compliance by Member States budgetary criteria, criteria of efficiency and equity criteria (Saguna, Tofan, 2010, p. 205).

Criteria aimed at ensuring the financial budget of the union budget, while ensuring their stability to sustain public expenditure of the Union. Effectiveness criterion requires the analysis of measurable parameters such as operating costs and revenue sharing is a measure of visibility of financial resources to the European citizens which can more easily identify the final destination of the money collected. Fairness criteria meet the requirements of proportionality: equal pay should be equal to tax paid at different income tax calculated and paid actually be different (in proportion to the revenue base).

Financial argument in support of a European tax is that it would own financial resources with other Community budget current financial resources consist of customs duties, VAT and a share of GNP taken an important part. In reality, the calculation mechanism ensures the financial autonomy of Member States, the term "own resources" having no actually a strict interpretation of the term. Creating a European tax is based on both a financial sense and a political one too. Financial argument seems to be ineffective. Contrary to popular belief, Europe needs new revenue budget as the Community budget resources must always ensure budget balance, is a unique privilege in the world which allows reducing the importance of other financial resources. However, income is guaranteed and carried out automatically adjusts the cost of a ceiling set at 1.27% of EU GNP.

Justification for a European tax policy is equally capable of two separate arguments: one official, referring to the idea of European citizenship, is the logical consequence of integration in terms of freedoms won, including the euro, symbol *of unity in diversity*. The

second argument (rather seen as a counterargument) concerns the partisan hostility that are hostile to the Union of European tax considered inappropriate given that some European countries do not want the Euro (with special reference to the United Kingdom which does not abandon the national currency for euro). There is also another official point of view, which looks much more delicate, that a single European tax would in fact financial autonomy of making decisions, whether the Parliament would vote for a European tax, that means only need to justify the financial costs. The application of the treaties instituting the nature and financial resources are authorized ceiling determined by the Council and then ratified by the Member States. In other words, the blockage is twofold: there should be unanimity in the Council and approval of national parliaments.

It is expected that the discussions behind the European flat tax would actually be a struggle for the division of powers between the European Parliament and national ones. The issue is sensitive because a European tax would actually reduce national resources, but the European Parliament's powers in tax matters are directly applicable to the national ones.

Opponents of establishing a single European tax are as follows:

a. most democratic regimes have been created to organize and control public debt to bring about equity in collateral on tax collection, transfer of competences from the Member States of the European institutions affect national sovereignty, a bold interpretation of Article 14 of the 1789 Declaration of Human Rights European Union shows that the tax would violate the agreement.

b. European flat tax would only meet the interest of fiscal policy and is a prerogative of various types of arbitrary tax levies; will only reach an inflexible instrument of European authorities without a real efficacy, either in terms of fiscal policy (the equity), nor in economic terms (the reallocation of budgetary resources).

c. replacing the current national contributions based on GNI (gross national product) that is most important community resource direct levy on taxpayers (individuals or companies) will complicate the European tax system in excess (as a result of the compromises occurred at the European Council over three decades).

d. a tax taken directly to the EU would raise questions about the mobilization and control: on the one hand it would benefit the countries where tax evasion is “endemic disease”, on the other hand, states better organized for tax purposes will pay more than other countries (mainly in Central and Eastern Europe, new EU members) have a less efficient tax administration.

However the idea has followed its course is regularly in discussions of the European Commission and European Parliament, but also among representatives of Member States. The single currency is considered an enabler of European integration and also enables new guidelines on financial and fiscal policy.

4. Consequences of an European tax

The consequences of a single European tax are political, establishing a more effective parliamentary control over union financial resources, but also a national parliamentary control over the resources that will be taken from each Member State and such financial direct effect of the single European tax consisting of a wider vision of union expenditures. Equally, it is estimated that a single European tax highlights the status of European citizen and would lead to greater adherence to values and principles of the Union.

a. More effective parliamentary control over the resources of the Union. It is believed that the current system of approval of the Community budget is not satisfactory. The European Union's expenditure is voted by co-decision procedure by the European Parliament and Council. Parliament has the last word in terms of spending most of the common agricultural policy support, but within the revenue limits.

Article 274 of the Treaty establishing the European Communities states: “The Commission will deal with budget execution [...] his own responsibility.” There is thus a clear

distinction: Parliament and the Council decide which expenditures will be made, and the Commission implements their budgetary decisions. Budget execution is subject to the provisions of Financial Regulation, which, according to art. 279 of the European Community Treaty shows detailed rules on budgeting.

The rules for implementing certain provisions of Financial Regulation is set in a Commission Regulation which states that every year each institution shall adopt internal rules on the powers of officers and financial managers. In practice, however, the Commission supports the Member States to implement certain policies. For example, agricultural expenditures in the Member States are specifically authorized the task of national institutions, which operate under the rules laid down at Community level. In the Structural Funds, European institutions decide on the amounts to be paid and conditions of implementation. A Member States administration (national, regional and local) selects projects to be funded and take responsibility for daily management. Working with Member States, the European Commission ensures that projects are completed successfully and the money is well spent. Similarly, Member States are those which collect traditional own resources. Again, the Commission shall ensure that rules are satisfied.

In addition to assuming responsibility for the proper management of all expenditure, the Commission has the task to implement directly a part of the community budget through its departments, primarily in the areas of domestic policy (such as research, education and training) and external actions. These direct management tasks were recently introduced and represents a challenge for the EU administration. Due to the continuous update of management tasks and methods are needed personnel and administrative resources increasing. The Commission may delegate some of its direct management duties, by individuals or agencies acting on behalf and at its expense. This process is known as outsourcing. The Commission may, for example, to subcontract technical tasks such as management studies or information technology specialist, with private companies. However, some tasks, which involve special liabilities, can be met only by the institutions designated by the Member States. This form of outsourcing is used to run certain programs in education. The Commission may also delegate the management of programs by public institutions of the Communities.

Budget execution procedure is governed by a number of technical rules designed to ensure implementation and management of individual budget appropriations correct income available to the Commission. These rules are contained in the Financial Regulation, the provisions on own resources. Budget execution is subject to the principle that duties of authorizing, accounting and financial controller must be exercised by different individuals. Tasks and responsibilities of each are set by the Financial Regulation. Under the financial control authority of each institution, authorizing officers and accountants are responsible for various operations related to spending and revenue collection.

b. National parliaments, according to constitutional provisions in each Member State, vote the value of financial resources which will be the union budget's own resources, which shows a level of parliamentary scrutiny of EU levies.

From this point of view the question is the possibility emergence of a financial jam in the allocation of financial resources by Member States under conditions in which a national parliament would approve the funds that own resources consisting of the union budget. However, this type of blocking has not occurred so far, but the risk of such a “revolution” persists. The situation could create resumes that parliamentarians will have to rally behind their decisions by national parliaments, although they will be declared contrary to the EU Treaties by the European Court of Justice and will employ state financial responsibility question. Scenario will be a major political crisis.

However, establishing a single European tax would increase the responsibility of the European Parliament as regards the respect of consent to taxation, clearly contributing to increased tax democracy in Europe. The vote on tax matters remains a prerogative symbolic,

but gives consistency to the parliaments and parliamentary work. This is exemplified in the national tax measures, the work of pressure groups and MPs tabling amendments to the tax. Given that government spending will be pursued, particularly soft on the regional fund, social funds, etc. research budget and also mobilize financial resources to meet their budgetary and fiscal powers of the European Parliament will be fully realized by the citizens, is an important step towards the imposition of the principle of consent in Europe.

The direct effect of creating a single European tax is the greater visibility of expenditures made at European level (the principle of budgetary transparency and the principle of publicity). Also, the Europeanization proponents support the idea that a European tax would shape much stronger individual membership to the Union as a European citizen. Budgetary and fiscal powers of the European Parliament will be more consistent, which will give consistency and fluency in budgetary and fiscal policy measures taken, being a serious reason for avoiding a tax opponent, as happened in the UK by introducing so-called *poll tax*.

5. Scenarios for a single European tax

European flat tax should not be sensitive to changes in the economic markets of Member States. European Union will preserve for long an important percentage of mandatory spending. The level of new tax should be considered fair for all Member States. In this respect there were few possible scenarios:

Scenario 1. Create a new tax to trim common. The political solution has several drawbacks. First, introducing a new tax is an unpopular measure, although the explanations may be given and can be credible, certainly leading anti-tax community rebelliousness.

Scenario 2. Supporting a tax on common by all Member States. This would result from the trim harmonizing the tax base the assessment of potential contributors. Such an approach leads to the exclusion of the idea of a European tax on personal income: tax base is so different that a harmonization effort would require considerable work and many difficult compromises.

Scenario 3. VAT seems to be the simplest solution technically and probably also in political terms. For example, reducing VAT in France from 19.6% to 17.6% will provide the European Union (Council and Parliament) the right to charge up to 2 percentage points of VAT. In contrast, the French national budget contribution from the Community budget would be eliminated. An alternative would be disregarding the fact that the burdens imposed intra fair value would correspond to a common market.

Conclusion

The global financial crisis has augmented the discussion of introducing a single European tax. The financial difficulties facing the European Union member states are serious obstacles to the establishment in the near future of a European tax. At the Copenhagen European Council European officials have been forced to discuss the budget on a midget to support environmental objectives of the countries that face serious climate change (2.4 billion euro's).

So, in this crisis, European Union, institutions and powers will have a double duty: to increase its budget by finding their own resources in conjunction with the European fiscal policy and coordinating national tax policies of national budgetary policies. As for a long time the common European objectives will be mainly financed by national budgets, the added value is much higher than the EU budget.

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M-MACBETH METHOD VERSUS TRADITIONAL SCORING METHOD USED IN THE OPTIMIZATION OF PUBLIC EXPENDITURE MANAGEMENT

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Abstract. *The science of public finances has an arsenal of methods, techniques and procedures which on long term allow it to act by eliminating waste and losses from the complex mechanism of public finances. An important component of this mechanism is engaging the public expenditure, through which the grant of financial resources from the public budget are sized. Both the practice of purchasing products and public services, but also making public investment describes methods rather simple, but primitive in the complex process of getting a new hire's public spending. The M-Macbeth method completes the portfolio of modern tools available to public finance science. Through the contents of this method there are introduced additional selection criteria of the products offers and services so that the employment process of public expenditure have a favorable impact on the controllability of deficit budget and to contribute, slightly, at the sustainability of economic development.*

Keywords: public expenditure; macbeth approach; scoring method; public goods and services; public auction; multi-criteria analysis.

JEL Codes: H4, H5.
REL Codes: 13B, 13G.

1. Introduction

Chronic budget deficits, growing public debt, global economic crisis, overall unemployment, poverty are some of the concerns and problems with which the today central and local governments everywhere struggle. This is because once the financial crisis triggered in 2007, national economies have recorded strong contractions of economic activities volume and hence the immediate consequence was a significant reduction of the financial resources volume received by the national public budgets.

Many central governments during the economic boom have fallen into the exuberant trap of budget revenues growth to economic fund growth recorded on long periods of time. Although it was obvious that the economic growth would lead on long term to warming of national economies, however, many governments, concerned of the well being of the individuals (in the election period) have increased pensions, state employees wages etc. But the seeming economic ”boom”, based on the theories of speculative bubbles, was brief. There followed periods of recession, specific to every economic cycle, in front of which central governments were unprepared. This is because governmental costs designed according

to the cyclical economic gains lost long-term financial sustainability as consequence of sudden reduction of income collected from national public budgets.

What followed we all know. Poverty and unemployment beyond the budget deficits and public debt in exponential increase are now threats to national security to every state.

Global economic crisis costs were direct and indirect. Direct for Romania, as state employees had to “digest” the 25% salary reductions, and for each individual the bill crisis meant increased VAT by five percent, which led to increased utilities costs and the food costs, which by now must be paid monthly. The danger of direct costs also soared above the pension system insurants. Only that they were "saved" on Constitutional Court by a last minute intervention that declared unconstitutional the provisions of the enactment act by which pensioners rights were reduced by 15 percent.

There are also a series of indirect costs of the crisis. Unseen but important and paid by population through taxes. It is the loan (maybe even loans) that Romania pledged to the International Monetary Fund to strengthen the foreign exchange reserves belonging to the country. Apparently, to an unsuspecting reader in the field, this does not mean a threat to financial security of every individual. But the loan did nothing more than ensure the exchange rate stability. Because any escape from its control, on amid a weaker economy, it meant a shot in the chaos of the country’s macroeconomic equilibrium. The President of Romania, at the suggestion of some specialists not to create panic on the financial market and not to disrupt the weak progress of national economy, has called the loan on right word, the “safety belt” that Romania needs. This is because we drive a “nicked” car that, dynamited by the spark of imbalances can be permanently stopped from its natural and legitimate way to much desired sustainable development.

Thus, although the loan ensure the exchange rate stability, its negative effects will be found on medium-term in the fiscal mechanism. It is an indirect cost, which is not too distant maturity and will generate pressure on the financial stability of Romania, especially because its payback period is quite short. Perhaps in other cases we will sue for a new indebtedness, because the “snowball” effect works just as good for the public debt.

This way understood Romania that she has to fight with the hard and merciless war against the global economic crisis. She reduced public sector wage bill, threatened to make reductions in the pension system, increased VAT rate five percent and fueled the Romanian foreign exchange reserve account with a new loan from the International Monetary Fund.

Let’s consider, briefly, some of the anti-crisis measures that other countries have adopted. For example, Bulgaria has reduced, so it did not increase, to 10% the wage tax. Hungary even bolder, abandoning the taxation principles, had the courage to impose additional two high-performing sectors of national economy namely: the financial services sector and the monopoly markets sector specific to public services (Blöchliger, 2008). The conclusion can be easily made by a layman in public finance: the two countries have provided a mobility for the center of gravity of the financial crisis cost from the population towards the business area, even if they targeted sectors of national economy for which they applied a tax high beyond the limit of normality and equality.

Consequently, the carried out analysis revealed that there are two types of budgetary policies that were implemented during the crisis by the central and local governments, namely: budgetary revenues policy in order to raise revenue for public budgets and rationalization policy of budgetary expenditures in order to reduce the payments level made by public expenditure commitment. An increase in earnings followed by a reduction in costs by implementing two types of budgetary policies can have only a positive impact on the controllability of budget deficits.

2. Modern tools for public expenditure engagement

The budget process in the implementation phase of public expenditure includes expenditure commitments as a first step, followed by liquidation, authorizing and payment. These steps are known in the literature, beeing extensively treated in academic textbooks inside the country (Moşteanu et al., 2008) and abroad (Prud'homme, 2002).

The employment of public spending has implications in the government budgets execution because at the base it has the sizing of the financial expenditure to be financed from public budgets. Therefore, the way in which public expenditure is involved, but especially its financial size, depends eventually the size of budget deficits. And from the budgetary deficit to the public debt, as a form of covering the budget deficit, is only one step.

Finally, there is a number of rules listed in the regulations (Ordinance no. 36/2006 on Public Acquisitions) that lead to the formation of the financial dimension of public spending, known as public procurement procedures. In the literature, this component of the financial dimension of public expenditure is vaguely treated just as a consequence of the lack of importance that public finance experts have given it. The mentioned procedures are four in number and include: direct purchase, request for bids, public auction and direct negotiation.

Regardless of how these processes are regulated, underlying procurement contract is concluded, however, important for the specialists in public finance are the rules governing the extensive and delicate process of public expenditure employment (Bird et al., 1998).

The first and most important rule is that expenditures can not be undertaken only within approved budgetary appropriations for this purpose. This rule, however, could not be observed especially for public investment expenditure, which can not be made during a calendar year and can not be financed from the budgetary appropriations related to a budgetary exercise. It was necessary to import some new concepts of foreign literature, who founded the multi-annual budgetary appropriations (Bird, Smart, 2001). Therefore, the new rule has taught us how to "bite" today from tomorrow's budget. This is because multi-annual budgetary appropriations ensured that from future public budgets, public money are reserved to finance public interest objectives.

The second rule, which this time is detached from practical reality of the public budget's implementation, says that a public expenditure can not be opened unless operational budget appropriations are open within the budget appropriations approved. In other words, even if the rule is not scientifically proven, it teaches basic rules to ensure budget balance. Without this rule, any accrued expense in the public sector could result in exceeding the approved budget appropriations, with no opportunity to exercise real control over the approved expenditure budget classification.

Finally, the third rule is also dedicated to the practical reality that shows us that any opening of budgetary credits can not be achieved only within the limits of its budget. Although, the rule is not recorded in the literature nor in the normative acts in force, it is not only required, but it provides protection to any contracting authority against the risk of financial collapse.

In a logical successsion the three rules underlying public expenditure management form the golden rule of public spending, that can be formulated as follows: No public expenditure can be committed by public funds over the budget appropriations. No credit can be opened under the approved budgetary appropriations limit.

Beyond these rules, however, a natural question arises: How to commit a public expenditure? Followed by another question, namely: What are the disposable modern tools we have to employ the most efficient public expenditure?

We give the answer to these questions starting with the second question. Because it is not so important to know how to commit a public expenditure, as it is important to know

which are the modern tools to employ a public expenditure after a reasoning that provides the best combination of cost and quality. Dedicated specialists in the field have already established/asigned several modern methods to employ effective public spending. The first subject of this research work is the method M-Macbeth for employment of public expenditure, followed by the Bayes-Nash equilibrium theory. Besides these, there are many other methods which basically teach us how to select the best choice of products and services necessary for the activities of public institutions (Holtz, Luft, 2003).

All these modern tools show us the structure of the financial dimension of public expenditure. In fact it is the resulting formation of the public expenditures value which results from the competition offers of goods and services market suppliers. In fact, it is a game of interest, where at the intersection of the interests of the supplier/executor/deliverer and the requirements of the public authority is formed the amount of public spending. This value is then passed through the "canon" budgetary mechanism, and finally, public investment, products and services to be made available to public institutions.

3. Methodological approach using M-Macbeth method in simulating various case studies

M-Macbeth method was developed by a group of researchers at the London school of operational research, led by Carlos A. Bana e Costa. The method is based on multicriteria analysis, in which are combined quantitative criteria and qualitative analysis of tenders for goods and services and can be used in both public and private sectors (Bana e Costa et al., 2004). Thus, the public authority, and public institutions will be able to purchase market goods which comply with the optimal combination between quality and price.

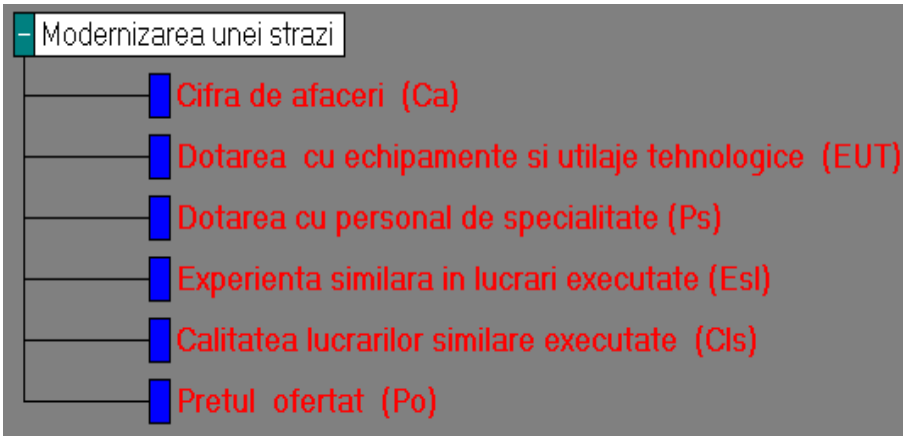
The M-Macbeth method is applied by the public authorities and institutions, when they are purchasing from the market products and services needed by the activities developed by them. Bidders for goods and services will have a limit of maximum value (Vmax) imposed by public authority and a minimum limit imposed by specific costs (Cspec) that each of the bidders who participate in the public procedures has. Beyond these limits the decision algorithm will offer a negative score to the deals speaking which will lead to the offers elimination from the competition. Thereby, it is performed the selection of the most advantageous offers.

It thus generates a maximum and minimum range in which it is formed the value of the goods to be delivered to public authority. This value is very important in the appointment of public spending, as it should be linked to the rules of management of budget appropriations.

In this context, the M-Macbeth method by which the multi-criteria analysis is developed combines both the rules imposed by the lowest price criterion, and the rules imposed by technical criteria, so that any product or service purchased through the procedures of public spending hiring follows the purpose-combination between price and quality. The method ensures the market selection by tendering procedures regulated by law, product and service necessary for public authorities in terms of advantageous price and quality.

To implement the method M-Macbeth, following steps are required (the example of its implementation was done on a simulated case study in the *M-Macbeth software* - „Public aquisition procedure - Street Rehabilitation"):

a) Determine the decision nodes and their analysis module. This stage is based on establishing the criteria under which it will evaluate offers of goods received from the executors. In practice, there are two categories of criteria, namely financial criteria and technical analysis criteria.

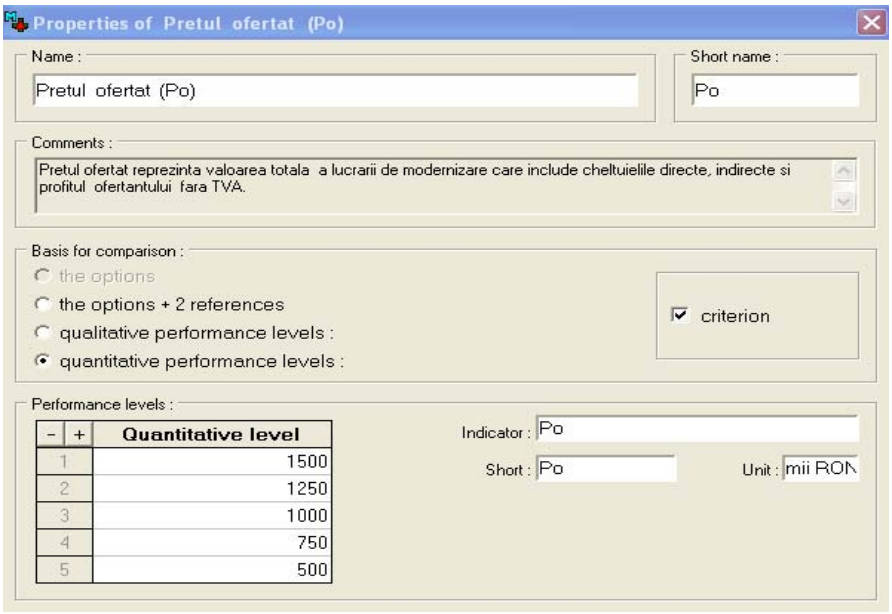


Box 1. *Establishing decision nodes* (simulated case "a street Modernization")

For instance, for a road rehabilitation, considered a public investment, there can be established as financial criteria the turnover of the bidders, the price they offer for the public investment or creditworthiness indicators (economic or financial rate of return).

In the category of technical criteria there may also be included „similar experience" criteria, value of the „equipment and technology systems" but also the quality of previous similar execution. None of these criteria are exhaustive, but they are set by the public authority, according to the objective pursued, in the process of selecting the bidder that will make the public investment, considered as a case study.

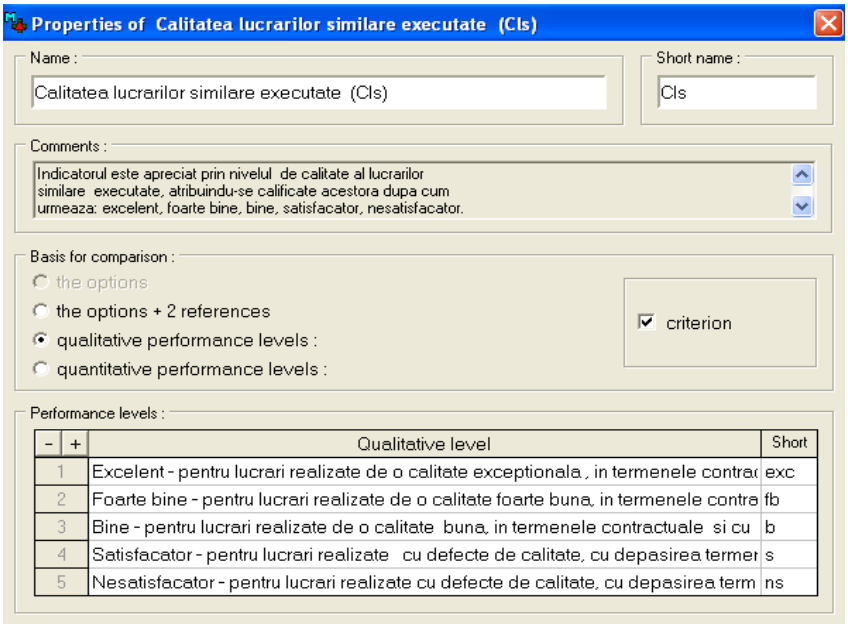
What is needed to be mentioned about this criterion is that the method of assessment can be done mainly using quantity and quality indicators.



Box 2. *Properties of the decision node "price offer"*

For example, the criterion value for "price offer" will be measured over intervals of interest, characterized by a minimum $(l_{\min})$ and a maximum limit $(l_{\max})$, and within these levels, whose number is fixed by public authority, respecting the inequality:

$$l_{\min} \le C_{pret} \subset (N_1, N_2 ..... N_i) \le l_{\max} \qquad (1)$$

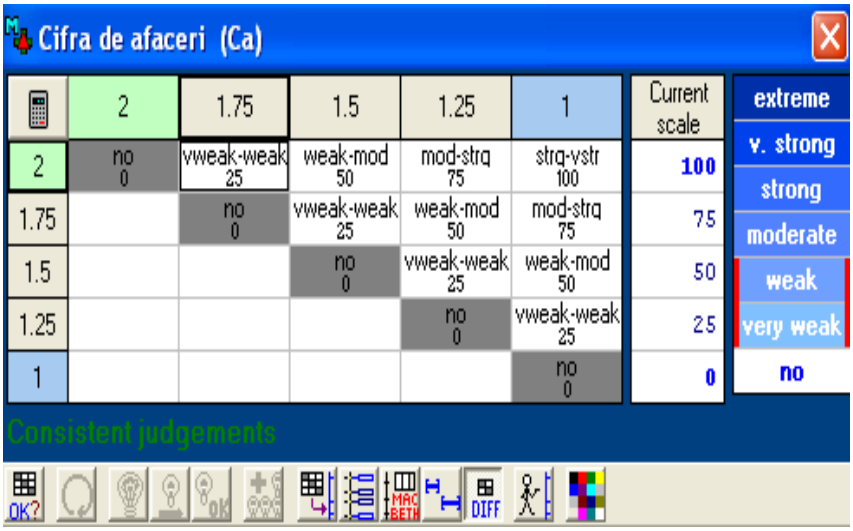


Box 3. *Properties of the decision node "quality for similar works"*

The criterion „quality for similar works" executed, as measured by quality indicators, will have set levels of assessment through scores like: excellent, very good, good, satisfactory or unsatisfactory. The decision nodes and analysis module via the quality and quantity indicators are the precursory step to the second stage which will determine the intensity of linkages between analisys indicators and will generate the evaluation scale for participations to the public procedure.

b) Determine the intensity of links between decision nodes and it generates the evaluation scale of the offers.

This step is extremely important in determining the winning bids, because within it the intensity of linkages between the indicators that assess the nodes of decision is determined, on one hand and, on the other hand, it generates the evaluation scales of the tenders. The intensity of linkages between qualitative and quantitative indicators of decision nodes is determined by grades: very weak, weak, moderate, strong, very strong and extreme.



Box 4. *The intensity of ties between the quantitative criterion of "turnover"*

For example, if the turnover decision brought into the decision node to evaluate the tenders submitted, the links between indicators of quantity are set to the following mathematical inequalities:

- N1 compared to N2 (poor to very poor), N1 compared with N3 (low to moderate), N1 compared with N4 (moderate to strong) N1 compared with N5 (strong to very strong);
- N2 compared with N3 (very low to low), N2 compared with N4 (low to moderate), N2 compared with N5 (moderate to strong);
- N3 compared with N4 (very poor to poor), N3 compared with N5 (low to moderate);
- N4 compared with N5 (very poor to poor);

Also, at this stage, the software generates the assessment scale of the offer. This is based on two criteria namely: setting minimum and maximum range of the scale, as minimum and maximum number of points, after which, depending on the number of indicators of quantity, but also on the indicators of quality, it develops the evaluation scale for each criterion.

The simulated evaluation scale for the „Turnover" decision node it can be analyzed in Figure 1 as having a linear form. However, the evaluation scale for "Quality for similar works" decision node can be examined in the Box 5.

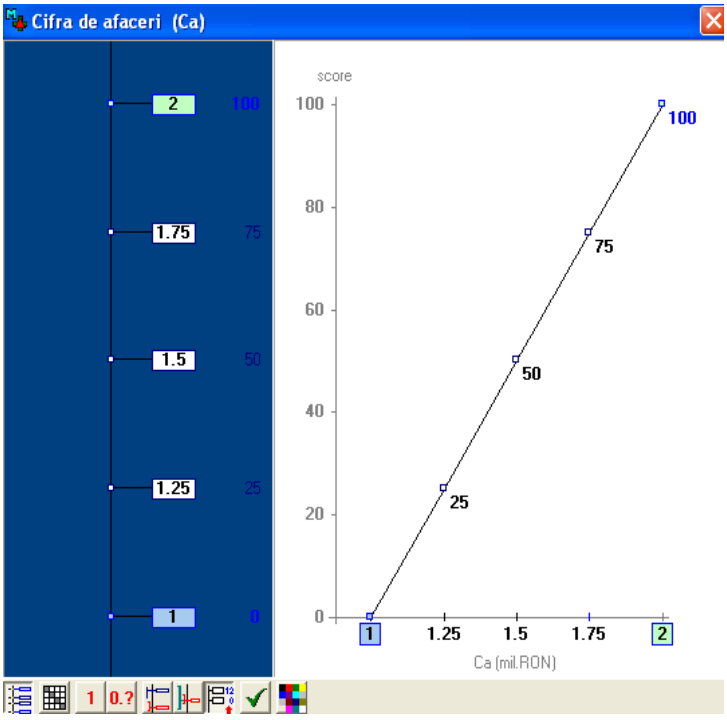
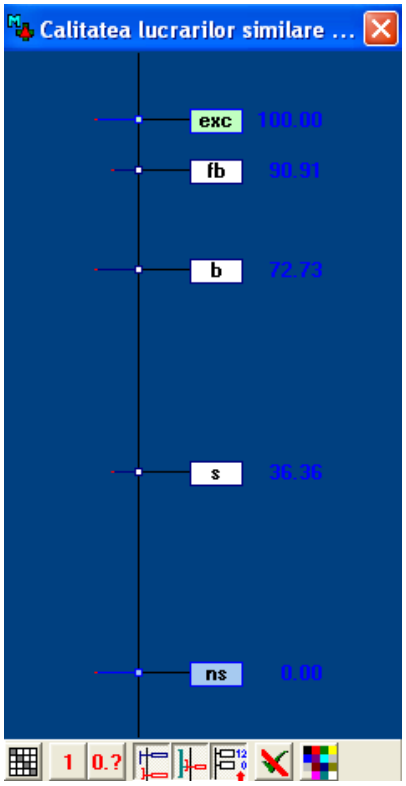
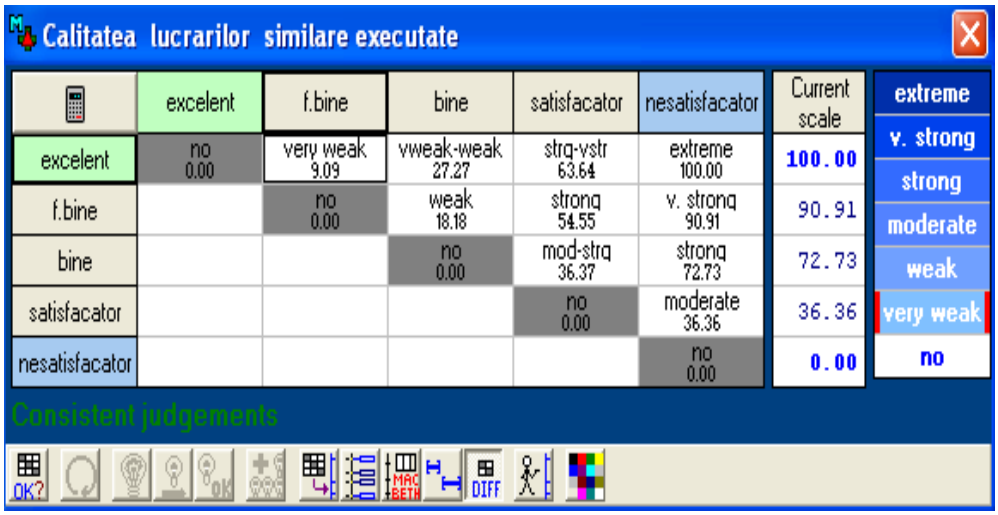


Figure 1. *Simulated intensity links between quantitative indicators of the criterion quantity "Turnover"*



Box 5. *Simulated intensity links between qualitative indicators of criterion "Quality of similar works"*



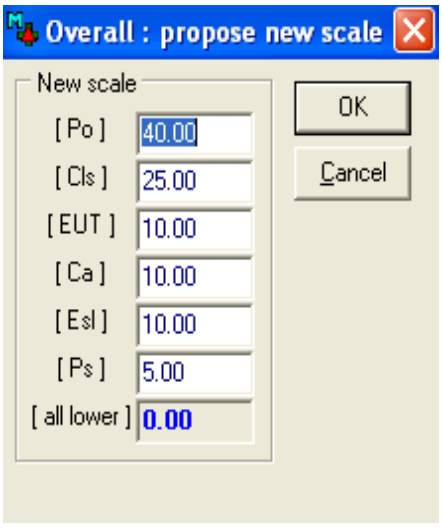
Box 6. *Simulated intensity links between qualitative indicators of the criterion "Quality of similar works"*

Characteristic for the scale assessment is that in the minimum and maximum levels are set subintervals of evaluations.

c) Determine the weight of each node in the total number of decision points established for evaluation; the bids are inserted as presented and it is finally given the score. The third stage is the final one, which takes place to implement the method which consists in crossing the next three sub-stages, namely:

c.1) It is established the weight of each decision node in the total number of points used for evaluation. The decision nodes share in the total number of points is determined by the public authority, according to the objectives pursued in the selection process of tenders. For example, if the price is considered as a priority, then the largest weight in total nodes decision will be held by the price node.

The simulation for decision nodes share setting in total weight of decision nodes is shown in the figures below.



Box 7. *Setting the weights of decision nodes in the total number of points*

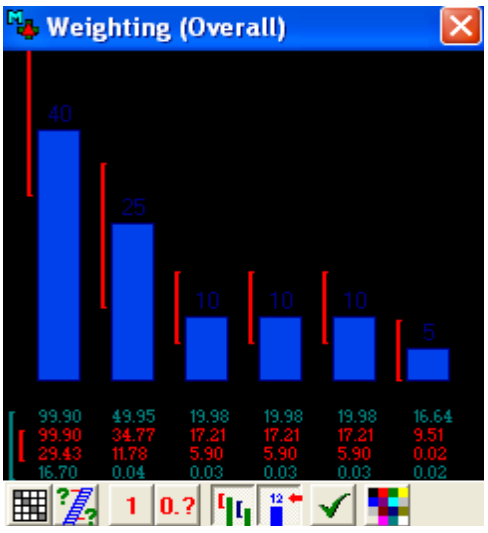


Figure 2. *Graphical representation of the weights of decision nodes*

c.2) The bids are placed with those economic, financial and technical features that were recorded in the procedure. The simulation with the submission of the characteristics is presented also in the figure below:

Table of performances

Options	Ca	EUT	Ps	Esl	Cls	Po
C1	1.8	27	55	1.7	fb	1000
C2	1.6	26	42	1.1	b	850
C3	1.5	17	47	1.4	s	900
C4	1.1	25	31	1.82	b	515

The simulation of introducing the characteristics of the options is submitted. In the case study were introduced the tendering bids of four companies, named C1, C2, C3 and C4.

Box 8. *Simulation of characteristics of tenders*

c.3) To each offer it is assigned one score, at each decision node, depending on the number of points for the afferent indicator of quality and quantity of the nearest scale to the bid amount submitted (N_pV_{ics}), summed with the ratio of the difference between supply indicator value

(V_{io}) and indicator value on the scale that is closest V_{ics}) and (the difference between the maximum value of the indicator on the scale ($V_{\max is}$) and the minimum scale indicator ($V_{\min is}$).

multiplied by the difference between the maximum number of points on the scalesubmitted for bid ($N_pV_{\max is}$) and the minimum amount of points on the scale for the tender submitted ($N_pV_{\min is}$) by a formula of the form:

$$N_{of}(CP) = N_pV_{ics} + \frac{V_{io} - V_{\min is}}{V_{\max is} - V_{\min is}} \times (N_pV_{\max is} - N_pV_{\min is}) \quad (2)$$

Table of scores

Options	Overall	Ca	EUT	Ps	Esl	Cls	Po
[all upper]	100.00	100.00	100.00	100.00	100.00	100.00	100.00
C4	83.06	10.00	100.00	68.89	109.15	72.73	98.80
C1	77.02	80.00	104.44	105.56	105.72	90.91	50.00
C2	75.02	60.00	102.22	91.11	88.57	72.73	68.00
C3	60.99	50.00	75.56	96.67	97.14	36.36	62.00
[all lower]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scaling constants :		0.1000	0.1000	0.0500	0.1000	0.2500	0.4000

Box 9. *Simulation of the model`s result, overall score*

The conclusion is that the application of M-Macbeth enables the government to select those suppliers of products and services and public works investments that provide the best combination of price and quality. For example the M-Macbeth placed the company four C4 on the first place, C4 receiving the model`s highest overall score. C4 has the following economic and technical characteristics:

- Price: 515.000 RON
- Rurnover: 1.100.000 RON
- Equipment and machinery endowmen: 25 pieces
- Specialized staff: 31 pieces
- Quality of similar works executed: well
- Achieved similar experience: 1.830.000 RON

Either the objective is just tender procedures to select bidders for goods and services, which besides the lowest possible price they offer to hold the technical capacity necessary to provide products and services and not least to ensure the provision of goods and services of the highest possible quality.

For the specialist in public finance, it is important to know the methodological approach of the M-Macbeth, since it runs the most important stage of budget execution in the procedure of public expenditure. In the stage of engagement of public expenditure, the value of goods and services is formed with direct impact on the budgetary credits which the institution or public authority has approved..

4. Comparative analysis: traditional scoring method versus M-Macbeth method

Romania, engaged in the process of harmonization of standards and norms in public procurement and not only, has adapted almost "on the fly" the legislation in this area. It was the first step to modernize the complex and delicate process of engagement of public expenditure. That is why, today, in the Romania's public sector, the engagement in public expenditure is based on the traditional scoring method. Although it seems a rather simplistic way, without claiming to be scientifically proven, it allows the authorizing officers to aim efficiency in the allocation of budgetary resources.

What is this method?

To understand the algorithm of method will be to present, briefly, the steps that are required to be taken for its implementation. A first step is to formulate goals that the officer pursued in the process of engagement in public expenditure. These goals are then "processed" in the criteria for awarding offers. In practice there have emerged two types of criteria, namely: financial criteria, which mainly aim is it select the offer with the best economic and financial indicators, and technical criteria where the objectives include technical indicators. In combining the two categories of criteria officer will ensure the possibility to select, in a transparent and visible way, the supply of goods and services, that is the most advantageous to the institution's activities and public authority.

The second step is based on the award scores for each of the two categories of criteria established by the officer. Flexibility of the scores that can be assigned (financial or technical) enables the officer to select the offer that is most advantageous in terms of price-quality ratio. For example, if an officer seeks only the financial component of the goods he buy, then it may assign the scores as follows: 70 points for the financial criteria, while the technical criteria will be awarded with 30 points. Otherwise, it is intended, for example, only technical criteria, the officer may reverse the award scores. The scoring method allows the random assignment of scores, which gives a degree of flexibility in the decisions that officer is going to take in the process of purchasing goods and public investment that needs.

The third step of the method consists of allocating scores for each tender submitted in the procurement process. How to assign scores related to the offers? The algorithm scores award is based on weighting rule, according to which any offer that is most advantageous from the financial and technical point of view is given highest score, then any offer will be scored in proportion to the total that have considered the most advantageous offer. For example, consider the offer (O_i) the most advantageous in terms of price criterion (P_i), while the offer (O_j) has a price (P_j) with $P_i \prec P_j$, applying the algorithm scoring method results that:

- the offer (O_i) will have a maximum score (N_{max}), determined by assigning a maximum score on the price criterion;

- the offer (O_j) will be determined after weighting algorithm determined by the formula:

$$N_{(Oj/Pj)} = \frac{Pi}{Pj} \times N_{\max} \qquad (3)$$

The last step in this method consists in summing the scores for each offer scores, after financial and technical criteria and determining the winning offer. According to the scoring

method, the winning offer is the one that has accumulated the highest number of points of offers that have been evaluated.

Applying the algorithm of the two methods for engaging in public spending resulted the situation presented in the table below:

	Criterion 1 Turnover		Criterion 2 Equip and machinery		Criterion 3 Specialized staff		Criterion 4 Achieved sim. exp,		Criterion 5 Quality of simil. works		Criterion 6 Price offered		Total
	Mac.Beth	Score Met.	Mac.Beth	Score Met.	Mac.Beth	Score Met.	Mac.Beth	Score Met.	Mac.Beth	Score Met.	Mac. Beth	Score Met.	Result (score method)
C.1	80	10p	104	10p	106	5p	105.7	9.34	90.91	25	60	206	79.94
C.2	60	8.88	102	9.63	91.1	3.81	88.57	6.39	72.73	15	68	24.23	67.94
C.3	50	8.33	75.5	6.29	96.7	4.27	97.14	7.69	36.36	10	62	22.88	59.46
C.4	10	6.11	100	9.26	68.9	2.82	109.2	10p	72.73	15	98.8	40p	83.19
Weight	10		10		5		10		25		40		

Panel 1. *Establishing evaluation criteria weights for scoring method*

The analysis compared the two methods and it shows that the total scores of the offers are close to each other, respectively 83.19 points for the offer submitted by the company C4, with the scoring method, compared to 83.06 overall result after method M-Macbeth.

The comparison made, confirmed that the two methods, although different reasons, led to almost the same result. Research has shown that in both cases, using either the scores, either the M-Macbeth, the offer presented by the company C4 is declared as winner.

SWOT analysis of the analysed two methods, which generates public expenditure engagement, highlighted the following strengths, weaknesses, opportunities and threats presented in the table below:

Strengths		Opportunities	
Traditional scoring method	M-Macbeth approach	Traditional scoring method	M-Macbeth approach
- Simplicity; - Flexibility in the allocation of scores; - Possibility to include different criteria in evaluating tenders, by their nature;	- Offers the possibility of analysis by the theory of decision nodes; - Introducing the intensity of links between decision nodes; - Flexibility in the allocation of scores;	- Method development according to the contracting authorities needs; - Algorithm development related to establishing final scores afferent of offers by introducing other weighting factors;	- Robustness and Sensitivity analysis; - Warning on lack of consistency, verifying the compatibility of judgements matrix and helping to sort it out
Threats		**Weaknesses**	
Traditional scoring method	M-Macbeth approach	Traditional scoring method	M-Macbeth approach
- Subjectivity in evaluating tenders when the evaluation criteria can not be quantified; - No long-term development of this method, by introducing weighting factors, will cause the risk that this method may not respond anymore to the public officer`s needs;	- Subjectivity in evaluating tenders when the evaluation criteria can not be quantified; - Adaptation to user needs by simplifying the procedure;	- The risk of contesting the results when the evaluation model is designed on quailtative criteria; - When the qualitative criteria prevail, it arises the risk to select offers that employ public budgets which do not take into account the financial resources;	- Hardness in use because of its complexity; - Inability to control the scale of assessment decision nodes when using qualitative criteria;

Panel. 2. *SWOT analysis of the M-Macbeth method and the traditional scoring method*

Regardless of the results to be obtained, the comparison of the two methods shows that each of them is very important in shaping the value of goods and services to be purchased by the contracting authorities. The explanation is simple. Each of this methods, through their algorithm, lead to the setting in which to be purchased goods and services, but also to define their main technical characteristics.

Either of these values must comply with the restriction that the amount of basic goods and services purchased by the authorities must be less than their estimated value, for the process of public expenditures to be conducted in terms of efficiency required by auditing standards force.

5. Conclusions and proposals

Understanding and knowing the two methods, underlying the engagement of public expenditure, is of major importance for the science of public finance, which should include in its sphere of scientific interest the methods that lead to revenue and expenditure budgets. For the appointment of public spending, by far, their engagement plays an important role in the allocation of budgetary resources.

This is because in the appointment of project expenditures, build the value of public assets, are the technical indicators that define the performance of goods and services purchased by the public authorities and manages the budget at the public sector.

But how do we manage budgetary commitments?

In the advanced research, a method was studied and implemented by a group of researchers at the London School of operational research, led by Carlos A. Bana e Costa: the M-Macbeth method.

This approach is based on multicriteria analysis, based on the selection of decision nodes depending on which the offers of goods and services that were selected for employment in public expenditure processes are evaluated. The next step is to determine the analysis mode of each decision node , usually using the intervals of interest. Then, for each criterion, respectively for each decision node, the intensity between the gaps of interest is established and the scale of tenders assessment is generated. This step is extremely important because in its scenery value gaps are formed, in which the selected bids are going to be evaluated. A final stage of the method is based on the award of tenders and the establishment of the winning bid, depending on the offer which has assigned the highest number of points. The method, although it is very complex, responds to the basic requirements which generally the authorizing budget appropriations have, namely to combine the technical criteria with financial criteria and to select bids that have the best combination of price and quality.

The Scoring method, specific to the hiring process of public expenditure in Romania, follows the algorithm of proportionality, according to which the best value in terms of financial or technical, is given the highest score. Each offer receives another score in proportion to the value he possesses the most advantageous offer. In the end the offer which has accumulated the highest score is selected. The ranking method is based on a fairly simple algorithm, but has the disadvantage of subjectivity when assessment criteria are based on qualitative judgements.

Whichever method is selected for evaluating the tenders, M-Macbeth or Traditional Scores method, for consecrated researchers in public finances science remains a challenge for developing methods underlying the assets in the public sector. This is because large amounts of money particularly undertake to carry out public investment. For example, Romania only in 2010, aimed to make public investment more than 20% of government budget approved. And this means that a significant amount of resources in the budget, around 10 billion euros, is engaged by using scoring method.

It remains to be seen how far the applied research will expand in methods of execution of public expenditure, because research is similar to time wasted with results that appear after long efforts of thought and simulation in each university research laboratories.

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TAX EVASION IN ROMANIA – SOME CHARACTERISTICS

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Abstract. *The aim of this paper is to identify the most important aspects of tax evasion in our country. I captured the most important tax evasion crimes identified by the law and I presented the latest data on financial control. Based on data collected I determined the identified tax evasion, then tax evasion unidentified, estimated using on a simplified model, based on two different methodologies. Based on the two sizes I estimated the total tax evasion for our country.*

Keywords: tax evasion; underground economy; fiscal policy.

JEL Codes: H26, H31.
REL Codes: 8K, 13I.

1. Introduction

Tax evasion is a phenomenon met in all countries, which adversely affect the company and the balance of public finances. However, data on tax evasion is very difficult to find, both in our country and in other states of the modern world. There is no database at the European Commission nor the other international financial organization. In our country there is not even a rich literature in this field. This makes the author's approach and the research project, in which analysis are carried out, a welcome step.

I tried to present the most important characteristics of tax evasion in Romania, to present meaningful data on financial control and tax evasion. Finally, based on aggregate data, I estimated the total tax evasion for our country, based on a simplified model, a model that has as starting points the methodology of the National Institute of Statistics and the DYMIMIC methodology.

2. Tax evasion: theoretical and legislative approaches

Taxation has been accepted as a necessary evil in society, accepted that the state could undertake as a priority expenditure for the national interest. So, the taxation has been accepted in society to redistribute income from those with high incomes to those with middle income and small.

The reality is that these goals are corrupt by a multitude of issues:

- who establish the national interest?
- who establish priority spending?
- who decide what are the criteria of justice and social equity?
- how can members of society to oppose to a arbitrary and even hostile to them taxation system, after some people were invested with power to regulate taxation?

Based on these aspects and the fact that human nature is pro tax evasion, we reach a higher dimension of this phenomenon in most countries. We mention here that, as a rule, high-income taxpayers have the power to influence legislative decisions on taxation and low-income taxpayers have few opportunities to legally avoid tax and then pass legislation in the tax evasion.

Tax evasion can be:

- tax avoidance or lawful tax avoidance (legal evasion) as it is known in local literature;

- tax evasion or illegal tax evasion (ilegal tax evasion) as it is known in local literature;

I consider that tax evasion is illegal and the legal tax evasion is tax avoidance; in fact, I cosnider that the anglo-saxon classification is fair to the meaning of these terms.

Even the law of tax evasion in Romania confirms this view, because tax evasion is practically a crime. In practice, the boundaries are not very accurate between avoidance and evasion, so that there is a gray area of evading tax payment, "the avoision (Avoidance + Evasion).

Most often, tax evasion means an offense under the law, a willful violation of tax law in force and is distinguished from tax avoidance, which is a clever use of the possibilities and alternatives offered by the law.

For C.V. Brown and P.M. Jakson, tax avoidance is defined as a legal reorganization of a business so as to minimize tax liability and tax evasion, as an illegal business reorganization, for the same purpose.

Typical activities of tax evasion assume for the taxpayer making decisions under uncertainty (to be discovered and be forced to pay tax and penalties), whereas tax avoidance implies safety for the taxpayer, when it takes certain tax decisions, though, and this may involve some frustration generated by the intention of searching for a reduced tax.

Characteristics of tax evasion:

- is a fraud committed against a particular economic agent (the government). In this position the Government meets the triple role: impose rules upon which economic relations are conducted, is the victim and the referee at the same time;

- the government's knowledge of its purpose and how to act in the tax avoidance may play a crucial role in the choice of tax structure for this purpose the government must carefully combine information about those involved in tax evasion.

The Law no. 241/2005, for preventing and combating tax evasion in Romania, provides more offens, usually punishable by imprisonment. I tried to synthesize the most important examples of such acts which constitute tax evasion in our country.

It is a crime, punishable with a fine deed taxpayer who, with intent, not remake accounting documents destroyed in “writing in the documents control, although he could do it”.

There are offenses, punishable by imprisonment, following facts:

- a person's unjustified refusal to submit to the competent authorities and assets of the estate legal documents, checks to prevent financial, fiscal or customs, not later than 15 days notice;

- preventing, in any form, the competent bodies to enter, as provided by law, premises, premises or land in order to perform inspections of financial, fiscal or customs;

- retaining intentionally, within 30 days of the due date of amounts representing taxes or withholding contributions;

- holding or putting into circulation, without law, stamps, bands or standard forms used in the tax area, with special treatment;

- printing, storing or putting into circulation, stamps, banners or printed forms used in the tax area, with special treatment, falsified;

- setting in bad faith by the taxpayer of taxes or contributions, resulting in obtaining, without law permission, sums of money as reimbursements or refunds of the consolidated general government consolidated budget or compensation due;

- punished and association to commit such crimes;

- hide the source property or taxable or taxable;

- omission, in whole or in part, set off in accounting regulations or in other legal documents, the commercial operations or revenues;

- emphasis in accounting regulations or other legal documents, those expenses that are not based on actual operations or other operations highlight fictitious;

- alteration, destruction or concealment of accounting documents, memoirs of equipment charged or electronic cash registers or other data storage means;

- execution of double accounting records, using the documents or other data storage means;

- avoiding carrying out financial, fiscal or customs by declaring, declaring fictitious or inaccurate declaration on primary or secondary premises of persons tested.

3. Data on financial control in Romania, in 2009 and 2010

I have synthesized the most important data on financial control and tax evasion, from the last NAFA raport on 2010. The first table refers to the number of registered taxpayers in 2009 and 2010, and their structure, individuals and corporate.

Note that Romania have about 1.8 million taxpayers in total, of which about 20% are individuals, while the remaining 80% are corporate. From the recorded number of corporate taxpayers a share of about 8% are inactive. For individuals there are not inactive taxpayers.

Table 1

The number of registered taxpayers at 30 September, by types of taxpayers

Tax payers	Total		Active		Inactive	
	2009	2010	2009	2010	2009	2010
Total	1,797,490	1,795,646	1,680,920	1,691,260	116,570	104,386
Individuals	354,870	381,760	354,870	381,760	-	-
Corporate	1,442,620	1,413,886	1,326,050	1,309,500	116,570	104,386

Source: NAFA data.

Table 2

The number of active corporate taxpayers, registered on 30 September 2010, on the categories of tax payers according to the fiscal vector

Categories of tax payers	Total active corporate taxpayers	
	2009	2010
Corporate income tax	712,161	906,973
Tax on income from wages	550,538	519,240
Value added tax	654,777	629,502
Excise	3,760	3,314
Social contributions	519,952	486,993
Micro-corporate income tax	185,169	0*)
Gambling tax	1,429	1,015
Tax on crude oil and natural gas from domestic production	97	91
Mining Royalties	1,544	1,600
Oil Royalties	51	54

Source: NAFA data.

We observe that most of the businesses active contributors are paying income tax, and VAT, taxes on income from wages and social contributions.

Table 3

Cost collection

	Quarter III 2009	Quarter III 2010	Q.IIII 2010/ Q. III 2009 (%)
Lei spent per million budget revenue	11,784.7	10,614.7	90.1
Staff costs per million lei budget revenue	10,833.6	9,482.4	87.5

Source: NAFA data.

We note that the costs of collection are down about 10% in 2010 compared to 2009 (third quarter), and wage costs that are prevalent in these costs have declined even more than 10% (approximately 12.5%).

Table 4

Performance indicators

	U.M.	Q. III	
		2009	2010
The progress of the program budget revenues (gross values)	%	85.17	99.81
The progress of the program budget revenues (net values)	%	84.35	96.80
Reducing recoverable arrears at the end of the reporting	mil. lei	16,733.30	19,899.80
The degree of voluntary compliance to tax obligations	%	78.42	79.38
Number of inspections by an inspector (corporate)	no.	4.89	4.42
Number of inspections by an inspector (individuals)	no.	9.47	9.10
Attracted additional net amount on an inspector (corporate)	lei	647,190	1,013,009
Attracted additional net amount on an inspector (individuals)	lei	50,361	216,544
The degree of resolution addresses, in legal term	%	99.74	99.93
The degree of processing tax returns, in legal term	%	93.72	98.06

Source: NAFA data.

We note that a significant increase, in 2010 compared to 2009, at the level of achievement of program budget revenues, both gross and the net amount. In addition, in 2010, this index approaches 100%, which says a lot about determining the tax authorities to increase the efficiency of their activities.

Attracted additional amounts (net) on an inspector (corporate) have nearly doubled in 2010 compared to 2009 and attracted additional amounts (net), the inspector (individuals) are four times higher in 2010 compared to 2009.

Table 5

Revenue from the budget forced execution

Budget	Anul 2009	Q. III 2009	Q. 2010	Q. III 2010/Q. III 2009
	- mil. lei -			- (%) -
Consolidated general budget	14,092.7	3,362.4	3,396.6	101.0
State budget	9,322.5	2,126.8	2,166.8	101.9
State Social Security Budget	3,400.7	876.8	895.4	102.1
Unemployment insurance budget	162.5	52.4	37.1	70.8
Public health Insurance budget	1,207.0	306.4	297.3	97.0

Source: NAFA data.

Regarding tax evasion amounts, identified and recovered from general government, I can say they were kept about the same size, growth index in 2010 compared to 2009 it is about 100.

4. A model to estimate tax evasion in Romania

Based on data collected by institutions in the financial control (Ministry of Finance, NAFA, the Financial Guard and National Customs Authority, the Court of Auditors, the National Anticorruption Department, National Institute of Statistics) it was made a database of tax evasion and underground economy in Romania. Based on the author's own processing and a simplified model calculation (estimate based on models used by the National Institute of Statistics and by Prof. Friedrich Schneider) were obtained the following values:

4.1. Identified tax evasion

a. GDP share of identified tax evasion

	1995	1996	1997	1998	1999	2000	2001	2002
GDP share of identified tax evasion	1.2	0.8	0.7	0.5	0.6	0.4	0.5	1.45
	2003	2004	2005	2006	2007	2008	2009	2010
GDP share of identified tax evasion	1,80	1,71	1,76	1,77	2,80	2,75	2,87	2,34

Source: own calculations.

b. Share in tax revenue of consolidated general government (BGC) of identified tax evasion

	1995	1996	1997	1998	1999	2000	2001	2002
Identified tax evasion Share in tax revenue of BGC	4.12	2.96	2.63	1.74	1.94	1.32	1.75	5.16

	2003	2004	2005	2006	2007	2008	2009	2010
Identified tax evasion Share in tax revenue of BGC	6.51	6.26	6.33	6.19	9.66	9.82	10.07	8.36

Source: own calculations.

4.2. Underground Economy in Romania

a. NIS methodology

	2003	2004	2005	2006	2007	2008	2009	2010
GDP share of underground economy	14.3	14.5	16.6	19.2	20.0	19.6	21.3	23.5

Source: NIS data.

b. DYMIMIC methodology (profesor Frederich Schneider)

	2003	2004	2005	2006	2007	2008	2009	2010
GDP share of underground economy	33.6	32.5	32.2	31.4	30.2	29.4	29.4	30.2

Source: Ph.D. Prof. Friedrich Schneider data.

4.3. Estimation of unidentified tax evasion based underground economy

a. starting from NIS methodology: estimated unidentified tax evasion it is, on average, two thirds of the total underground economy, in the spirit of this methodology

	2003	2004	2005	2006	2007	2008	2009	2010
GDP share of unidentified tax evasion	9.53	9.67	11.07	12.80	13.33	13.07	14.20	15.67

Source: own calculations.

b. starting from DYMIMIC methodology: estimated unidentified tax evasion it is, on average, half of the total undergroundeconomy, in this more detailed method

	2003	2004	2005	2006	2007	2008	2009	2010
GDP share of unidentified tax evasion	16.8	16.25	16.1	15.7	15.1	14.7	14.7	15.1

Source: own calculations.

4.4. Total Tax Evasion

Total Tax Evasion = Identified Tax Evasion + Unidentified Tax Evasion

a. starting from NIS methodology: own calculations

	2003	2004	2005	2006	2007	2008	2009	2010
GDP share of total tax evasion	11.33	11.38	12.83	14.57	16.13	15.82	17.07	18.01

Source: own calculations.

b. starting from DYMIMIC methodology, own calculations

	2003	2004	2005	2006	2007	2008	2009	2010
GDP share of total tax evasion	18.60	17.96	17.86	17.47	17.90	17.45	17.57	17.44

Source: own calculations.

These values, determined by the methodology DYMIMIC, are more credible (as the trend and the values) than the values determined by a more simplified methodology of the NIS. It is noted that in the last two years the two data sets converge to the same value. Although we don't have a very precise analysis, we can say with a reduced margin of error, that the current tax evasion is somewhere between 17 - 18% of official GDP of Romania.

4.5. Index of perceived tax evasion in Romania

	2003	2004	2005	2006	2007	2008	2009	2010
Index of perceived tax evasion	3.85	1.36	2.27	2.04	3.13	3.21	1.68	2.09

Source: WORLD COMPETITIVENESS Reports.

This indicator is calculated on a scale from 0-10, where 10 is the state with tax evasion seen as being practically non-existent and 0 defines a perception of a country with the largest tax evasion.

5. Conclusions

Although it is a negative phenomenon, with profound implications on society and on the effectiveness of the national economy, tax evasion is not managed transparently, either in Romania or in other modern states. Existing data are not regular, are not published by industry sectors of activity and are not used effectively by the authorities. Based on the simplified model I have estimated in this article, I can say that tax evasion in our country, in 2009-2010, is somewhere between 17-18% of official GDP of Romania.

Acknowledgements: This work was supported by CNCSIS-UEFISCDI, project number PN II – RU PD 650 (postdoctoral program), contract number 74/2010.

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TAX EVASION: QUANTITATIVE AND QUALITATIVE FACTORS OF IMPACT

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Abstract. *The aim of this paper is to identify the impact factors, both qualitative and quantitative, on tax evasion. This analysis is based on a synthesis of the most relevant publications in the field. We can identify several types of impact factors, grouped into: traditional factors, the characteristics of taxpayer's, the characteristics of fiscal systems in different countries.*

Keywords: tax evasion; fiscal policy; behavior of economic agents.

JEL Codes: H26, H31.
REL Codes: 8K, 13I.

1. Introduction

Tax evasion is a complex, dynamic phenomenon, with a smaller or larger dimension in modern states. Tax evasion is influenced by many factors, like human nature, the degree of culture, the degree of development of society, the characteristics of tax laws, tax system characteristics, their transparency, the severity and size of existing penalties for such acts of evasion.

There is a rich literature in this regard, and still we tried to present briefly the most important and most important approaches such determinants.

2. Tax evasion – definition

There are a lot of definitions of tax evasion.

The deliberate failure to pay taxes (usually by making a false report) (wordnetweb.princeton.edu/perl/webwn).

Tax avoidance is the legal utilization of the tax regime to one's own advantage, to reduce the amount of tax that is payable by means that are within the law. By contrast, tax evasion is the general term for efforts to not pay taxes by illegal means (en.wikipedia.org/wiki/Tax_Evasion).

The illegal avoidance of paying tax, especially by making a false declaration of income (en.wiktionary.org/wiki/tax_evasion).

Illegally paying less in taxes than the law permits or committing fraud in filing taxes. public.findlaw.com/library/pa-tax-accounting-law.html

Tax evasion refers to illegal activities undertaken by taxpayers to escape paying taxes (www.fairtax.org/site/PageServer).

A prohibited or illegal act or omission which is designed to reduce a person's tax liability. (Expanded Legal Definition of Tax Evasion www.wwlia.org/LegalDictionary.aspx).

In contrast to tax avoidance, tax evasion is the illegal concealment of income from the tax authorities. Trusts have proved a useful vehicle to the tax evader, as they tend to preserve anonymity, and they divorce the settlor and individual beneficiaries from ownership of the assets (www.absoluteastronomy.com/topics/Trust_law).

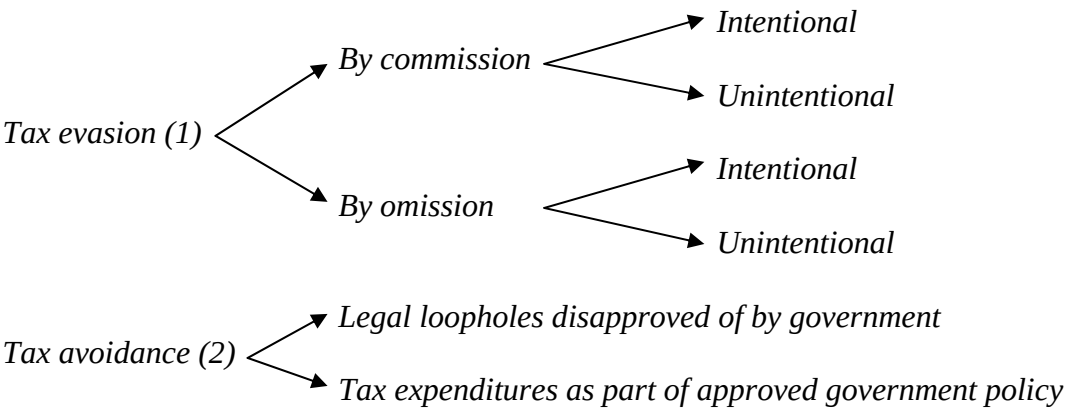
Illegally avoiding paying taxes, failing to report, or reporting inaccurately. The government imposes strict and serious penalties for tax evasion. Tax evasion is different from tax avoidance, which is making use of legal methods to minimize a tax burden (http://www.investorwords.com/4895/tax_evasion.html#ixzz12eF8QhAc)

Unlawful attempt to minimize tax liability through fraudulent techniques to circumvent or frustrate tax laws, such as deliberate under-statement of taxable income or willful non-payment of due taxes. Whereas tax evasion is an offense (punishable by both civil and criminal penalties), tax avoidance is not.
(http://www.businessdictionary.com/definition/tax-evasion.html#ixzz12eFWdicE).

An illegal practice where a person, organization or corporation intentionally avoids paying his/her/its true tax liability. Those caught evading taxes are generally subject to criminal charges and substantial penalties.
(vezi http://www.investopedia.com/terms/t/taxevasion.asp).

The most common form of tax evasion is claiming more deductions and/or tax exemptions than is warranted or to under-report incomes.

There is an ambiguous distinction between tax avoidance and tax evasion – it depends on the legal aspect, but the legal frontiers are not always clear.



Source: Cullis, Jones (2009).

The conceptual distinction between tax evasion and tax avoidance hinges on the legality of the taxpayer's actions.

Tax evasion is a violation of the law: When the taxpayer refrains from reporting income from labour or capital which is in principle taxable, he engages in an illegal activity that makes him liable to administrative or legal action from the authorities.

Tax avoidance is within the legal framework of the tax law. It consists in exploiting loopholes in the tax law in order to reduce one's tax liability.

How much anti-evasion activity?

Is there an "optimal" level of anti-evasion activity? An activity of fighting against tax evasion implies benefits (additional resources collected, but it can also be considered some other non-financial aspects) and also costs (additional cost of tax inspections). From a cost-benefit point of view, the optimal level of anti-evasion activity is the one that assures the equality between marginal cost and marginal benefit.

To measure all the costs of evasion activities is really a challenge – according the Pyle's classification (1989) the negative effects are the following:

- ⇨ From the demand side, revenue loss by tax evasion implies a reduction in public expenditures, a decrease in employment and investment, but from the supply side tax may be seen as a demotivation to work – the effect on the *level of output* is ambiguous;
- ⇨ There is an equity aspect of tax evasion – evasion generates unfaireness;
- ⇨ Misallocation of resources – investment decision is based on the marginal productivity of capital and labor, resources used in the informal economy might be more efficiently used in the formal economy;
- ⇨ Bias the information – macroeconomic policies are based on the official statistics; a countercyclical policy applied (for expanding the economy or for redistribution of income) would not have the unticipated impact;
- ⇨ If evasion is increasing this might lead to more evasion, by weakening tax morality, so that the efficiency of public sector slows down, by free riding attitudes (Laffer curve);
- ⇨ Tax evasion creates an excess burden Yitzhaki (1987).

Das-Gupta, Gang (1998) propose to use the decomposing technique, in order to explain the gap between actual revenue and potential revenue into components - changes in the tax rate structure, deductions and tax evasion.

Revenue Loss = Tax Rate Effect + Statutory Base Effect + Evasion Effect

Tax evasion has a negative implications, especially regarding its effect on tax revenues and excess burden. Government's responses to the decreasing revenue created by tax evasion are raising revenues from other sources, reducing the supply of public services, and/or borrowing, so it could also lead to excess burdens.

3. Tax evasion –factors of impact

a) Traditional factors of impact: tax rate, probability of audit, the fine in the case of getting caught in the case of tax evasion

Model

We can consider the following scenarios for a risk-neutral individual who obtains the income Y, in the case that τ is the tax rate:

(a) to declare and pay the tax, so the disposable income is $Y(1-\tau)$

(b1) to make tax evasion and with probability p is get caught and pay a fine F, so the disposable income is (Y-F)

(b2) to make tax evasion and with probability (1-p) is not get caught, so the disposable income is Y.

The expected value of disposable income in the (b) case is $p(Y-F)+(1-p)Y$.

The decision to declare or not to declare income Y is a consequence of the comparison between the certain outcome and the expected outcome – the individual makes tax evasion if:

$Y(1-\tau) \leq p(Y-F)+(1-p)Y$.

If we take into consideration that the individual is risk-averse, the outcome is dependent on the utility function – the evasion case has a lower utility because it has to compensate the risk of beeing caught.

If we consider that only a part of the income is subject to evasion, the individual might decide the value of decleared income, D. The following scenarios arrise:

(a) to declare and pay the tax for the entire income (Y=D), so the disposable income is $Y(1-\tau)$

(b1) to make tax evasion, declaring a smaller part of the income (D<Y), and with probability p is get caught and pay a fine F for the undeclared income, so the disposable income is

$Y-\tau D-F(Y-D)$

(b2) to make tax evasion, declaring a smaller part of the income (D<Y), and with probability (1-p) is not get caught, so the disposable income is $Y-\tau D$.

The value of D is obtain by maximizing tha expected value of the utility

$\text{Max } E(U)=(1-p)U(Y-\tau D)+pU(Y-\tau D-F(Y-D))$

$dE(U)/dD=-\tau\,(1-p)U'(Y-\tau D)-(\tau-F)pU'(Y-\tau D-F(Y-D))$

The theory gives intuitive results regarding the changes of variables:

- ⇨ an increase of the tax rate – declare less income, but the overall outcome depends on income and substitution effects – the increase of tax rate reduces the net income, but also increase the aversion to risk, in conclusion the tax evasion is falling or increasing;
- ⇨ an increase of the fine – the tax evasion is falling considering the income and substitution effects;
- ⇨ an increase of the probability of detection - the tax evasion is falling considering the income and substitution effects.

Surveys

Lewis (1979) concludes that respondents believe that a reduction in tax rate would have a little effect on evasion. Dean, Keenah, Kerney (1980), Mason, Calvin (1984) find out that the most popular reason for evasion is the high level of taxation.

Econometric

Clotfelter (1983) higher tax rate tend to stimulate tax evasion.

Torgler, Schneider (2007): tax burden – the lower the smaller is the evasion, probability of detection – paradoxically, the higher it is, the greater is the shadow economy.

Spicer, Lundstedt (1976) – propensity to evade is positively correlated with inequity, number of evaders known, experience of audits and income from wages and salaries, and negatively correlated with probability of detension, age, income level.

Experimantal

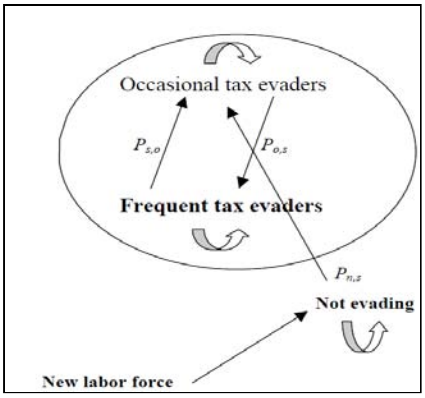
According to Friedland, Maital, Rutenberg (1978) the direct relationship between the increase in tax rate and the increase in probability of under-reporting

Turning now to experimental studies, tax evasion games have shown that evasion increases with the tax rate and that evasion falls as the fine is increased and the detection probability reduced.

b) Caracteristics of taxpayers (economic situation, age, sex, education, morality, psychological incfluences)

Hanousek, Palda (2002) use a logit model in order to explain the probability of tax evasion.

Tax evasion		T+1		
		Often	*Sometimes*	*Never*
T	*Often*	$P_{o,o}$	$P_{s,o}$	*0*
	Sometimes	$P_{s,o}$	$P_{s,s}$	*0*
	Never	*0*	$P_{n,s}$	$P_{n,n}$



Their finding is that the following variables are of individual significance in the logit model: economic situation of taxpayers (if the economic situation of taxpayers is degraded from the previous periods the probability of moving from never evading to sometimes evading is bigger), women are less likely to evade than are men, and people that buy goods or services from the underground sector are more likely to shift from not evading to sometimes evading.

Torgler (2007) find a significant correlation between tax morale and tax evasion; also there is the conclusion that higher education has a positive effect on tax evasion (educated taxpayers are supposed to know more about tax law and the possibilities of evading tax).

Empirical studies conclude that elderly people evade taxes significantly less than younger individuals. Tittle (1980) argues that older people are more sensitive to the threats of sanctions and over the years have acquired greater social stakes, as material goods and status, and depend on others' reactions, so that the potential costs of sanction increase.

Torgler (2007), Clotfelter (1983), Feinstein (1991) conclude that married people evade taxes significantly more often than singles. Barth, Cappelen, Ognedal (2006) argue that individuals with low wages or long working hours, individuals that are treated unfairly by most tax systems, have a higher probability of justifying tax evasion. These results are consistent with models in which individuals make a trade-off between economic gains and fairness considerations when they make decisions about tax evasion.

Allingham and Sandmo (1972) considered the social stigma that may be attached to being caught in evading taxes and showed that this leads to a more restrictive condition for tax evasion to be optimal. Another alternative is to assume that people have a bad conscience about evading taxes.

Spicer (1986) considers that the psychic or stigma cost might be included in the utility function, because the decision to evade is influenced by perception of the justice of the fiscal system. This cost is determined by the feelings of discomfort, which is dependent by the number of tax evasion acts.

Maximizing utility implies to calculate the probability of detection and the fine as a punishment. But some other factors might be more relevant – social and moral norms, perceptions of justice, particular beliefs, different attitudes that may conduct to a decision not in the best self interest.

Increase the degree of tax morale (the intrinsec motivation to pay taxes) it is measured by World Values Survey from coded responses – „cheating on tax if you have the chance".

c) Characteristics of fiscal system (bureaucracy, the complexity of fiscal system)

Because tax systems have become increasingly complex over time in many countries around the world, the complexity has become an important determinant of tax evasion.

Several studies (Clotfelter, 1983, Long and Swingen, 1988, Collins, 1992, Milliron, Toy, 1988, Vogel, 1974) showed a strong positive relationship between the complexity of tax systems and size of tax evasion.

The governance and institutional quality – Torgler, Schneider (2007) – measured by political risk ratings and other indices related to bureaucratic quality, corruption, democratic accountability, government stability, law and order, internal conflict, presence of military in government – significant.

Marginal tax rate is another important determinant of tax evasion, but the empirical results are not clear. Clotfelter (1983) and Mason and Calvin (1984) find a positive corelation between marginal tax rates and tax evasion, while Feinstein (1991) and Christian and Gupta (1993) shows a negative correlation between these indicators.

The importance of taxpayers perception about fiscal equity notion should also be taken into account. Richardson and Sawyer (2001), as well as Spicer (1974) finds a significant number of taxpayers that associate tax evasion with the lack of tax equity in society. Song and Yarbrough (1978) also detected a significant negative association between these variables, 75% of subjects stating that taxpayers considered the concept of establishing the right of "capacity to pay" is important for tax evasion. Hite and Roberts (1992) found that the accuracy is significantly associated with perceptions of an improved tax system, and that fiscal equity and tax evasion are negatively correlated.

Spicer and Lundstedt's (1976) conducted a survey among US taxpayers and noted that the experience of taxpayers directly with the tax authority is positively associated with increased resistance to taxes and increasing tax evasion admitted. Wallschutzky (1984), Klepper and Nagin (1989a, 1989b) and Brooks and Doob (1990) also supports this view. In contrast, reduction of contact between tax officials and tax payers less likely widespread resistance and evasion (Tanzi, 2000, Sarker, 2003, Torgler, Murphy, 2004).

4. Conclusions

Synthesizing theoretical approaches in this field of the factors influencing tax evasion can be concluded that this complex phenomenon perennial, related to human nature, is heavily influenced by a multitude of factors, listed and presented in detail in the wording of the article. Unfortunately, although there are many studies in this area, their conclusions are not used in the fight to reduce this concrete phenomenon in our country. Many of those issues should be taken into account by the authorities, so when designing the regulatory provisions and in operational activities to fight against tax evasion.

Acknowledgements: This work was supported by CNCSIS - UEFISCDI, project number PN II – RU PD 650 (postdoctoral program), contract number 74/2010.

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IS PROGRESSIVE TAXATION A DETERMINANT OF TAX EVASION?

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Abstract. *In a context where several interest groups ask for progressive taxation, the paper tries to identify, if any, a connection between the taxation system (progressive or proportional) and tax evasion. The analysis is made so as to find a descriptive correlation between tax revenue increase when the proportional taxation was used and decrease in tax evasion, but the results do not confirm such a connection.*

Keywords: equity; tax policy; progressive rates; tax administration; tax evasion.

JEL Codes: H21, H26.
REL Codes: 8K, 13Z.

1. Introduction

Tax evasion is a phenomenon which affects every state and which, although heavily studied, seems not enough studied. This is due to the difficulty to answer the question: Which is the best method to combat tax fraud?

Probably the first step in combating tax fraud is establishing the method to combat tax fraud and the main factors of influence. As regards the size of tax fraud, the European Commission appreciated in a communication made in 2006 (COM (2006) 254, p. 2) that, although there are few methods to estimate tax evasion, generally it is valued around 2 – 2.5% of GDP, while tax revenues are around 39.9% of GDP. According to the USA tax administration data (Damjanovic, Ulph, 2010, p. 594) as much as 17% of due taxes are not paid.

As regards Romania, it could be mentioned that the Activity Report of ANAF (The National Tax Administration) for the first semester 2010 shows that the estimated value of the prejudices caused by tax evasion is 3,362.5 RON, while the tax revenues collected by ANAF mounted in the same period to 65,300.00 mil. lei. As a consequence we may say that the level of identified tax evasion was approximate 5.1% of tax revenues. Also, considering that GDP for the first 6 months of 2010 was 211.414,8 mil lei[(1)], an approximate estimation of the identified tax evasion phenomena in the first semester 2010 in Romania could be around 1.59% of GDP.

If the size of tax evasion is a controversy, not less controversial is the discussion on the influence factors. Some authors consider that the determinant factors are connected to morality. Thus, DellAnno (2009) considers that tax evasion is determined by tax morality which is determined by the intrinsic attitude of the tax-payer towards honesty and social norms. Cummings, Martinez-Vazquez et al. (2009), affirms that social norms are determined by the tax regime and by the capacity of the decision makers to answer taxpayers wishes.

Having in mind this last result and the frequent discussions on this issue[(2)] in 2010 regarding the wish to reintroduce progressive tax rates for personal income tax in Romani a[(3)], this study aims at analysing whether the choice for a progressive or proportional rate of taxation could influence the level of tax evasion.

2. Tax equity versus tax evasion

One of the fundamental principles of taxations is tax equity [(4)]. Tax equity has two forms (Moşteanu et al., 2004, p. 168):

- Horizontal tax equity: equal treatment for taxpayers with the same situation;
- Vertical tax equity: tax burden should be established based on the ability to pay of each taxpayer.

In Romania, this principle is implemented in the tax code, as such: „different taxation of revenues, based on their size" [(5)]. Thus, the Tax Code implements only the vertical tax equity. The expression of this principle is considered to be the progressive taxation of individuals' revenue. For example, Birle (2009, p. 25) states that for accomplishing tax equity it is necessary to „use progressive and multiple progressive taxation rates on a great number of revenue brackets (we state that at least ten would be necessary to assure a slow tax progressivity)".

So, although the Romanian literature, as well as the legislation, states that equity is realized through a progressive taxation of the individuals' revenues, starting with 2005 Romania gave up progressivity taxation and adopted a system based on a flat tax. Which were the arguments to determine a flat tax? According to Cataramă, Pădurean (2006, p. 84) the presumed advantages and consequences of this flat tax were:

- "the elimination of the difficult and resource consuming procedure of revenue globalization. Its elimination could simplify the procedures for calculating, collecting and following the taxes;
- the decrease in tax burden on the persons with small and medium revenues;
- the increase of receipts from tax revenues. It was foreseen that this tax relief would determine a reduction of tax evasion, which will lead to an increase of the taxable base.
- the stimulation of foreign investments. By attracting new foreign investments there will be new jobs created, so this could lead to an additional increase of taxable base;
- quick economic growth".

Thus, un argument for giving up the progressive system of taxation of individuals was combating tax fraud. This would mean that in the presence of progressivity tax fraud increases, although this system creates equity. Moreover, this would mean that the two systems of taxation could be characterized as follows:

a) Progressivity tax: equitable, but in favour of tax evasion;
b) Flat tax: not-equitable, but having an effect of decreasing tax evasion.

Following in the study the question is if these characterisations are sustained by the data and if so which is the lowest harm: inequity or tax evasion?

3. Tax evasion in different taxation systems

The quantitative analysis of tax evasion is difficult to realise with lacking data. The main institutions with competences to combat tax fraud in Romania is ANAF. This institution fails to public very clear information on the size of tax evasion and, unfortunately, not even in the same structure from year to year, which makes very difficult an interpretation of these data. Yet, we shall try to depict an image of this phenomena at the level of individuals during 2003-2009 so as we could analyse if the affirmations according to which a flat tax system generates less tax evasion than a progressive taxation system can be proved empirically. We'll try to value the tax evasion phenomena using two indicators:

- Cash receipts from personal income tax (IVP);
- The perception of tax evasion (IPEF).

In Table 1 the indicators are presented and their calculation method on the analysed period.

Table 1

The evolution of cash receipts from personal income tax per occupied person, the medium salary earnings and the index of tax evasion perception

Indicator	2003	2004	2005	2006	2007	2008	2009
Cash receipts from personal income tax (mil. lei)	5,354.1	7,012.6	6,745.0	9,763.8	14,374.9	18,365.17	18,551.4
Occupied population* (thousands persons)	9223	9158	9147	9313	9174	9369	9243
IVP (lei/person)	580.5	765.7	737.4	1048.4	1566.9	1960.2	2007.1
IVP growth rate(%)	-	31.9	-28.3	42.2	49.5	25.1	2.3
Medium salary earnings (lei)	807	973	1121	1481	1730	2023	2023
Medium salary earnings growth rates (%)	-	20.5	15.2	32.1	16.8	16.9	0
The index of tax evasion perception (IPEF)**	3.85	1.36	2.27	2.04	3.13	3.21	1.68
IPEF growth rate(%)	-	-64.7	66.9	-0.10	53.43	2.56	-0.47

Source: MFP Bulletin, The Reports on budgetary execution 2003 – 2009 available on the site www.mfinante.ro; www.insse.ro Participation of population to labour force; IMD World Competitiveness Online 1995-2010.

Note:

* Occupied population comprise all persons of 15 years and older which had an economic activity of at least 1 hour in the reference period (1 week) aimed at obtaining salary revenue or other benefits.

** The index of tax evasion perception is determined based on questionnaires sent to the management of large companies and should be interpreted as follows:: 0 – very high evasion; 10 – very low inflation.

Based on the data from the above table the years of the studied period may be grouped as follows:

- years when the growth of personal income tax was greater than the growth of the medium salary earnings: 2004, 2006, 2007, 2008, 2009
- years when the growth of personal income tax was lower than the growth of the medium salary earnings: 2005.

In fact this means that almost the entire period when the flat tax was used but also in the period of progressive taxation the growth of tax revenue receipts per person was higher that the growth of the salary earnings per person. Such a situation is difficult to explain, especially when the flat tax is evolved, as a simple mathematical analysis could make us think that the growth of tax per person should equal the growth of the revenue, as no other major changes in the calculation method of the personal income tax where detected.

The year 2005 reflects a normal situation, as it shows the impact of introducing the new flat tax. Thus, although the medium salary earnings grow by 15.2%, taxes per person decrease by 28.3%.

It could be said that the hypothesis that tax revenues will increase when flat tax replaced the progressivity taxation was validated, but was this due to combating tax fraud? If this was the case, then the data should have shown significant improvement in the tax evasion perception index. Only in 2005, the first year when the flat tax was introduced, this pattern was respected. In the following years, yet, there is no visible pattern, as the index varied considerably. It is remarkable that the year when tax evasion was the highest in Romania is 2004, the last year of progressive taxation, which could be an indication that our hypothesis was true.

3. Conclusions

The hypothesis of this study was that progressive taxation, although equitable, generates a higher level of tax evasion than a system of flat taxation. If fact it was a an attempt to show that choosing between a system of progressive taxation and a system of flat taxation means, in fact, the choice between two factual states: (i) low tax evasion accompanied by tax inequity or (ii) high tax evasion accompanied by tax equity.

The results do not confirm the hypothesis that there is a correlation between tax evasion and the system of taxation, although the flat tax taxation system generated an increase in tax revenues. Yet, these results should be carefully interpreted due to two factors: in this study tax evasion was quantified using an indicator of perception which might not be relevant for the real situation and the very short period of analysis. Unfortunately it is practically impossible to have a longer period of analysis to allow an econometric study, but this is a plan for future.

Notes

(1) According to the „Buletin Statistic Fiscal" No. 3/2010 published by ANAF on the site http://anaf.mfinante.ro, p. 3.

(2) Statements on the wish to reintroduce the system of progressive taxation were made by the representatives of unions (see the article „Sindicatele vor impozitare progresivă pe toate salariile, inclusiv de la privat" published by Adevărul newspaper on 11 May 2010), by representants of political parties (see the article „PSD vrea să introducă impozitarea progresivă după alegerile anticipate" publiched by Gândul newspaper on 26 September 2010) and even by representants of the government (see the article „Vlădescu anunță sfârşitul cotei unice, scăderea TVA şi impozit progresiv, inclusiv pe toate pensiile", published on mediafax.ro on 13 July 2010).

(3) Romania gave up in 2005 to progressive taxation of the individuals' revenues and introduced a flat tax of 16%.

(4) Equity is a principle which applies only to individuals.

(5) According to art. 3(c) of Law no. 571/2003 Tax Code, with subsequent modifications.

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IMPORTANCE OF FISCAL AND BUDGETARY POLICIES IN THE ECONOMY

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Abstract. *The aim of this study is to highlight the importance of fiscal and budgetary policies in the economy starting from the legitimate question regarding the identification of the adequate instruments to address the economic downturn in a fragile fiscal environment. Starting from this, the paper examines the choices between different intervention instruments in the economy to improve the economic conditions in the context of the indicated disturbing factors.*

Keywords: fiscal policy; budgetary policy; economy.

JEL Codes: E62, E63, H50.
REL Codes: 8K, 8M, 13C.

1. Introduction

In the new economic context, when countries all over the world face important economic downturn in a fragile fiscal environment, it is necessary to address the following question: "Which are the most suitable policies?". This is a legitimate question considering the contemporaneous conditions which are the results of the policies promoted in the past at both national and international level. Following a backward looking, it must be noticed the fact that countries used fiscal, budgetary and monetary policies in order to achieve their macroeconomic objectives without neglecting their pure economic objectives on medium and long term.

Considering the magnitude and the cumulative effects of the economic crisis since the summer of 2007 (European Commission, 2009a), it seems that the applied policies failed in the assessment process of economic growth and macroeconomic stabilization. Therefore, it is necessary a new policy framework constructed based on so called process "learning from the past mistakes in order to not repeat them further".

The aim of this study is to highlight the importance of fiscal and budgetary policies in the economy. The paper is structured as follows. The Section 2 presents the choices between different intervention instruments in the economy to improve the economic system for each of the country. The next section consists in indicating some of the aspects that affect the policy interventions in economy. Based on these findings, Section 4 is dedicated to the conclusions.

2. Choice of intervention instruments in the economy

There is no consensus among authors regarding the importance of fiscal and budgetary policies. Even that, the increasing number of studies in the recent period is capable to highlight the importance of these policy interventions in the economy.

[*] This work is an integral part of post-doctoral research topic "The effects of fiscal and budgetary policies on the economy" which is supported from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/89/1.5/S/59184 „Performance and excellence in postdoctoral research in Romanian economics science domain" (contract no. 0501/01.11.2010).
The author is grateful to Mrs. Prof. PhD Gabriela Anghelache (Bucharest Academy of Economic Studies) for the helpful comments.

It is well know the fact that the authorities define their objectives in every period considering the past evolutions and the future challenges. The main objectives consist in: i) resources allocation; ii) control of fiscal imbalances; iii) sustainable public finances; iv) inflation control; v) economic growth; vi) exchange rate stability.

These objectives can be achieved by the national authorities using different instruments of fiscal, budgetary and monetary policies. Based on the instruments efficiency in dealing with these objectives, it can be noticed that more adequate for objectives i) – iii) are the instruments of fiscal and budgetary policies, while the other objectives can be assessed with monetary policy instruments.

But, in this situation, national authorities face a dilemma regarding the identification of the most adequate active measures to deal with economic challenges of each of the time period. Therefore, authorities have to choose between them according to the current context of the economic system. In what proportion should use authorities' fiscal, budgetary and monetary policies instruments taking into consideration the effects of each of the instrument? These instruments generate important effects on aggregate demand and/or aggregate supply in order to stimulate both.

The national authorities' experiences reveal that there had been contradictory effects on aggregate demand and supply because there are other factors that interfere with their estimated incidence on the economy. For instance, Segura-Ubiergo, Simone and Gupta (2006) investigate the fiscal and budgetary policy effects on economic growth using the demand and supply channels. Therefore, based on experience of 26 transition countries, 1992-2001, the authors find strong evidence that a fiscal-budgetary policy improvement will stimulated the economic growth in long run.

Also, Afonso and Claeys (2007) highlighted the importance of temporary economic shocks on the fiscal and budgetary policy interventions. As consequences, the authors used in their analyses the cyclically adjusted variables in order to capture the growth effects of fiscal and budgetary policies for France, Germany, Portugal and Spain.

The public interventions in the economy must conduct to the assessment of the objectives established at national and international level without destabilize the economic system. So, it is necessary that the economy as a whole system must be stable even that there are compensatory and collision between the governmental actions from national to international level and vice versa. Thus, many authors showed that the system become stable when more variety instruments are applied in order to assure the cumulative conditions regarding the necessity for: i) fiscal sustainability; ii) stable and low inflation rate; iii) economic growth. Allsopp and Vines (2005) give an example for this issue referring to the „Tinbergen principle that more instruments of policy are usually better than fewer - and that it is quite foolish to expect one instrument of policy" (Allsopp, Vines, 2005, p. 497).

Also, these conduct to the need that authorities establish some targets for fiscal, budgetary and monetary policies. The targets can consist in: i) public debt ratio; ii) budget deficit ratio; iii) primary balance to stabilize public debt ratio; iv) economic growth; v) inflation. These targets impose some constraint on the national authorities' behavior in order to prevent an irresponsible comportment of those that will deteriorate the fiscal position and, therefore, will destabilize the economic system. In this regard, van Aarle and Garretsen (2003) presented the importance of the initial conditions which correlated with the unexpected temporary changes (Kitao, 2010) could have considerable incidence on the expected effects of the authorities interventions in the economy.

In this context, it could be addressed the following question: "are necessary benchmarks for the economic system?" The studies on this issue showed a positive answer (Marcellino, 2006, Lavigne, Maier, Santor, 2007, Hsiung, 2009, Heshmati, Lee, 2010).

Even that, there are adverse effects of government interventions in the economy which are induced by the people reaction to its. The reaction depends on the people confidence in the authorities in correlation with the time horizon (Giavazzi, Jappelli, Pagano, 2000, Afonso,

2001). In order to explain this, it is presented the cases regarding the people reaction in a Keynesian and a Ricardian economy.

It is well know the fact that in a Keynesian economy the time horizon is short and the people react with an increasing consumption to all the instruments that assure an improvement of the disposable income. This is valid only in short run and will cause important negative effects in medium and long run (Fazzari, 1994, Dalsgaard, André, Richardson, 2001, Roeger, Veld, 2002, Hunt, Laxton, 2003). On contrary, if the people consumption decision is oriented to a medium and long run horizon, there will be an influence generated only by the permanent income and not by the fluctuation of the disposable income. This is the case of the Ricardian equivalence that demonstrates the neutral effects of governments' interventions (Ricardo, 1962, Barro, 1974, 1979, 1989, 2009).

Starting from the general perception of people, it can be noticed that any contemporaneous fiscal relaxation will conduct to important taxation increase in medium and long run due to the fact that the fiscal position will deteriorate fast. But, when it is a taxation increase, the people reaction is not so visible with important public events such as strikes.

Thus, it comes to what Laffer argued regarding the switch in the taxation from an estimated tax rate that is appreciated to be optimal, to a higher level of taxation. In this case, the country will be in the "inadmissible area" when any increase in tax rate will result in budget revenues decrease (Laffer, 2004, Catarama, Mosteanu, Campeanu 2007, Padurean, Stoian, Campeanu 2010).

As regards the authorities' action on spending, it can be observed that, in the present context, population has strong reactions to the measures involving the expenditure cuts.

However, there are authors who argue that the macroeconomic objectives can be achieved by smaller "losses" especially using specific instruments of monetary policy (interest rates, exchange rates) (Alesina, Blanchard, Gali, Giavazzi, Uhlig, 2001, Kirsanova, Stehn, Vines, 2005). The countries experiences showed that the governments prefer the instruments with immediate positive effects for the economy even that these short term benefits will induce important log-term costs (Kitao, 2010). The opposite side is the study of Coenen and Straub and Mohr (2008) who examine the fiscal consolidation measures that will generate long term positive effects under short-term negative effects.

Increasing fiscal deficit and public debt may serve as arguments of an increasing importance of fiscal and budgetary policies as a result of the expansion of government actions based on public debt. In this context, fiscal and budgetary policies dominate the monetary policy (Leeper, 1991).

Even in the above mentioned conditions, government authorities must be considered as responsible for the general economic evolution of the country. So it can be observed a „multi-club" policy despite the identification of the most active policy instruments. At the country level, it can be distinguished between monetary policy oriented system (MPOS) and fiscal-budgetary policy oriented system (FBPOS) (Allsopp, Vines, 2005). For example, it is only FBPOS in 60 percent of the European Union member states. The other European countries can use the mix of these policies.

Also, fiscal authorities are considered the leader who "chooses the policy mix between interest rates and the fiscal instrument given the output gap" (Allsopp, Vines, 2005, p. 496). In order to do so, fiscal authorities must take into consideration the monetary policy reactions.

Many authors indicate the power of authorities in imposing some constraints to assure both monetary and fiscal-budgetary discipline in medium and long term (Balls, O'Donnell, 2002, Romer, 2009).

3. General aspects of the policy interventions effects in the economy

Starting from the current economic context, it must be noticed the great pressure on authorities to crisis control, mitigation and resolution (European Commission, 2009a) while there are estimated important ageing costs (European Commission, 2008). Also, crisis

prevention is an important aspect of policy interventions. More exactly, the authorities must undertake measures oriented, in short run, "to stabilize the financial system and real economy" (European Commission, 2009a, p. 2) and, in long run, to public finances sustainability in the context of the liquidity problem, perhaps of the solvency problem, and the ageing costs.

Therefore, authorities applied important active policy interventions in order to deal with these risk factors. Many authors highlight the importance of some factors in inducing important disturbances in the expected effects of policy interventions. These factors consist in:

- Initial steady state and unexpected temporary changes (van Aarle, Garretsen, 2003, Kitao, 2010);
- Consumer and business confidence. It can be considered as the most important because it generates significant switch in the policy interventions effects (Giavazzi, Jappelli, Pagano, 2000, Afonso, 2001);
- Timing and magnitude of the policy actions (Ramos, Roca-Sagales, 2007, Coenen, Mohr, Straub, 2008, Auerbach, Gale, 2009, Kuismanen, Kämppi, 2009);
- Quality and durability of the interventions (Daniel, Davis, Fouad, van Rijckeghem, 2006);
- Distributional effects between policy interventions (Coenen, Mohr, Straub, 2008);
- Compensating effects between policy interventions (Allsopp, Vines, 2005);
- Vertical and horizontal coordination (European Commission, 2009a);
- Need, capacity, ability and wiliness of the authorities to face the problems and to react (Allsopp, Vines, 2005, Lavigne, 2006);
- Credibility, reputation and predictability for the policy interventions (Allsopp, Vines, 2005);
- Confidence to address the challenges (Romer, 2009).

Today, the policy interventions conduct to the transition to another steady state. This new status will have to face the ageing costs. In this regard, many authors demonstrate that more suitable are the fiscal and budgetary policies instruments when large shocks hit the economy (Garnaut, 2005, Gruen, Sayegh, 2005, Krugman, 2005, Leith, Wren-Lewis, 2005, European Commission, 2009a). Therefore, according to Coeuré and Pisani-Ferry (2005), countries have to adopt a so called "sustainability pact". This is already a common practice for the national and international level (for example, European Commission published the Sustainability report 2009 (European Commission, 2009c)). Also, there are concerns at European level to identify the risk expose of EU member states. This exposer is quantified based on a composite indicator that measures the fiscal space of each country (European Commission, 2009a, b).

4. Conclusions

The increasing numbers of papers that addressee the fiscal and budgetary policies issues expresses the importance that is attributed to the governmental authorities in order to assure a stable economic system. In order to deal with these major objectives, authorities apply specific fiscal, budgetary and monetary instruments. But, some of the instruments predominate fact that indicates the orientation of the policy interventions (monetary or fiscal-budgetary policy oriented system). The multi-club instruments have their own costs despite of the positive effects in a specified time horizon.

Many authors demonstrate the importance of fiscal and budgetary policies in case of important economic downturn because of the relative more rapid effects.

The aspects mentioned above must be considered when it is preceded to a more analytical investigation based on countries data. Also, the investigation provided in this paper highlights the continuous transformation process regarding the policy interventions, the

instruments, the disturbing factors and the concerns for the future evolution of the economic system.

Acknowledgement

This work is an integral part of post-doctoral research topic "The effects of fiscal and budgetary policies on the economy" which is supported from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/89/1.5/S/59184 „Performance and excellence in postdoctoral research in Romanian economics science domain" (contract no. 0501/01.11.2010).

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A COMPARATIVE ANALYSIS OF THE BUDGETARY DEFICITS IN THE EU COUNTRIES IN THE CONTEXT OF THE GLOBAL FINANCIAL CRISIS

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Abstract. *Starting with late 2008 most of the EU countries displayed complex financial problems, in which consistent budgetary deficits have combined with negative net exports, with the ageing and pension system challenges and with the consequences of the global financial crisis. All these problems lead to the accumulation of significant government debts, which in turn contribute to the aggravation of the government deficits. Our paper analyzes the evolution of the public deficits at the EU level for the 2000-2009 period and tries to identify the ways and actions that could lead to the rebalancing of the public finances in the EU countries.*

Keywords: public budgetary deficits; government debt; budgetary expenditures; budgetary revenues; taxes; fiscal consolidation.

JEL Codes: E62, E63.
REL Code: 8K.

1. Introduction

Wagner (1892) was among the first to signalize the tendency for the fast growing of the public sector (he formulated the law of increased state spending), due to the overall progress of the society, but at the time his warnings were not considered of immediate importance.

After the second world war, in the European Union, the perspective of the minimalist state was replaced by the welfare state and the necessity of its intervention in the improvement of the negative effects of the market externalities and of the defective allocation of the financial resources in the economy. One important characteristic of the welfare state is concerning the significant budgetary deficits and the high stock of the public debt.

However, the budgetary imbalances that involve negative balances are no longer considered a failure of the public policies and the budgetary deficits can represent in many situations an instrument of ensuring a better allocation of the resources in the economy. Still, we must not forget that the tolerant approach of the budgetary deficits does not imply the discretionary accumulation of deficits but rather maintaining them within certain limits considered sustainable.

In the current EU context the issue of budgetary deficits is amplified by the manifestation of structural economic imbalances, such as the ageing problem connected with the sustainability of the pension system.

The issue of public debt and deficits has become of primary importance in the last years in the EU, especially because the global financial crisis made ever more difficult for the countries with high public debts and deficits to find convenient financing on the national and international financial markets. Countries from the Old Member States group (such as Italy, Great Britain, Spain, Portugal or Greece) as well as countries from the New Member States group (especially the Baltic countries, Romania and Hungary) found themselves in difficult

situations regarding the level of budgetary deficits, the level of public indebtedness or both. The intriguing fact is that most of these countries experienced an uninterrupted period of economic growth (most of them between 2000 and 2008), sometimes at paces well above the EU averages. Nevertheless this same aspect also represents an explanatory factor for the problems of these countries. The high growth rates of these countries were mostly due to expansion of the construction sector and to the lax consumer credit policies, without too much concern for the structure and main vectors of growth.

As regards the rules of the Stability and Growth Pact (SGP), in 2009 only four countries managed to observe them, respectively Denmark, Estonia, Finland and Sweden. The only country of the Eurozone 16 that managed to observe the provisions of the SGP is Finland.

2. The analysis of the public budgetary deficits in the EU countries

The theory and practice of the public finances use several measures to express the imbalances of the public budget, such as: the consolidated budget balance, the conventional balance, the primary balance, the operational balance, the structural balance and the quasi-fiscal balance. The use of these measures depends upon the purpose of the analysis and it varies along with the nature of the information required by the analysis. However, in the context of the current financial crisis, it seems much more important to address the issue of perpetuated deficits rather than approaching the technical differences between the fore-mentioned budgetary balances.

The choice of an optimal way for financing the public budgetary deficits represents a widely debated important problem. As such, authors like Dornbusch and Fischer (1990) consider that the public authorities can appeal to the following ways of financing the deficits:

- Financing by increased taxation;
- Financing by reducing budgetary expenses;
- Financing by monetary emission and
- Financing by public debt.

The financing by increased taxation was used by some EU countries which were strongly affected by the 2008 financial crisis. For example, Hungary and Romania, as part of their IMF financing deals, raised their rates of VAT by 5pp, from 20% to 25%, respectively from 19% to 24%. However, many criticize these measures, arguing that they may lead to increased inflation, increased fiscal evasion and reduced consumption, impairing as such the efforts of combating the effects of the crisis. The VAT has the advantage that it leaves unaffected the export competitiveness of the national products and it is equally distributed over the population (there are no exemptions, even if lower income population will see its purchasing power reduced more drastically). Normally, the economic growth is promoted when taxes are decreased and the investors feel confident again in the economic perspective of any given country.

The financing by reducing budgetary expenses was more or less practiced by virtually all the EU countries in an effort of keeping the deficits controllable. Nevertheless, it may induce negative influences upon the economic rebound if the public investment projects are reduced at the same rate as the current expenses.

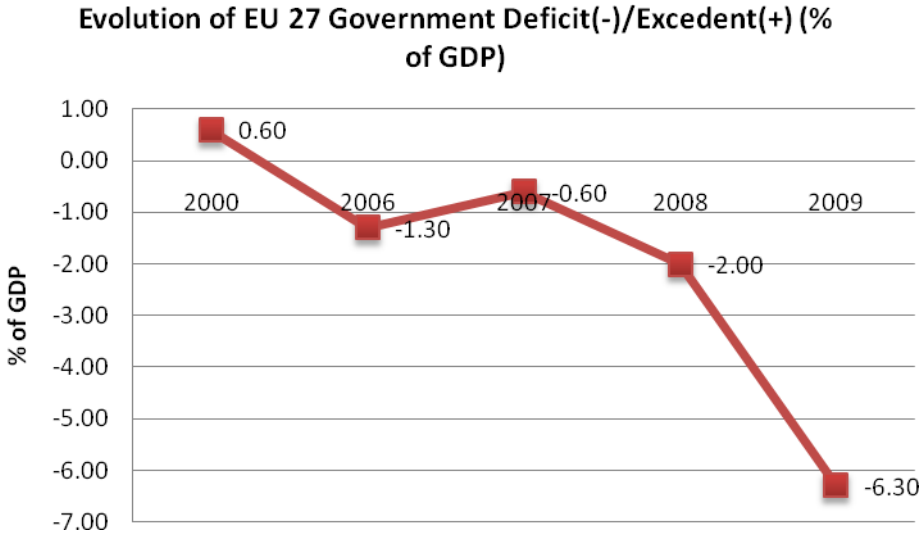
The monetary emission was ruled out for quite some time now by all the EU countries, whereas financing by public debt was given an important role in many EU countries. The most unfortunate case was that of Greece who saw its public debt reach very high levels in order to maintain the status quo for some categories of budgetary expenses, such as military and social protection expenses.

2.1. The evolution of budgetary deficits for overall EU

The cumulated budgetary balance of the EU countries for the 2000-2009 period evolved from a healthy surplus of 0.2% in 2000 to a high deficit of 6.8% in 2009. The worrying fact is that even in 2008 the balance was in fact a deficit of 2.3%. The problem is

that the deficit evolved on a period of steady economic growth. During 2000 and 2008 the EU economy grew by 35.88%, from 9,200 billion Euros to 12,500 billion Euros.

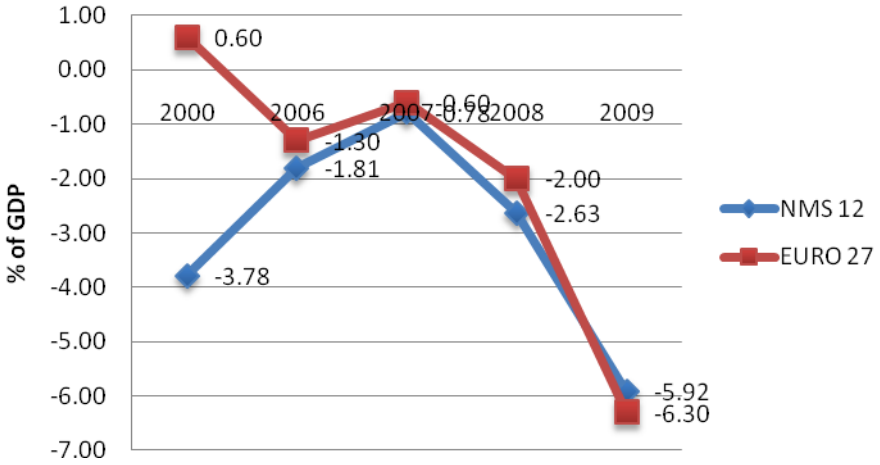
The situation of the budgetary deficits at EU level is depicted in the graph no. 1 below.



Source: Made by the authors with data from the European Commission, Eurostat.

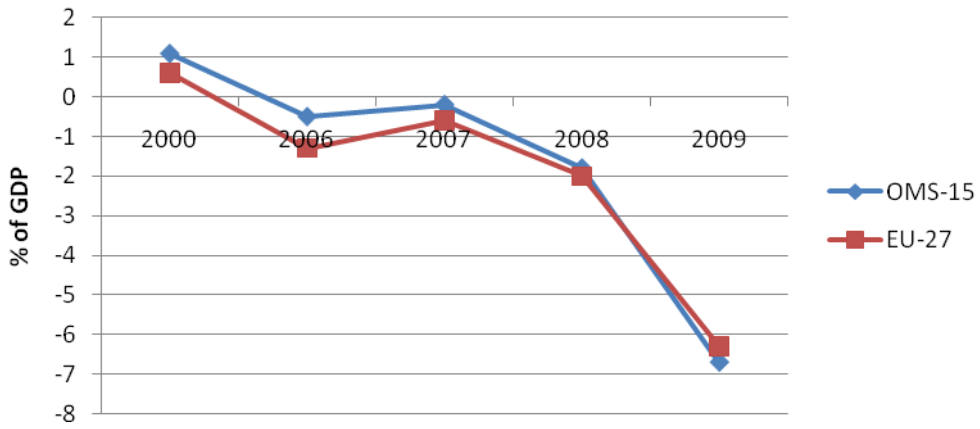
Figure 1. *The budgetary deficits at EU level*

The situation is somewhat different for the Old Member States (OMS) compared to the New Member States (NMS), as reflected in the figures 2 and 3 below.



Source: Made by the authors with data from the European Commission, Eurostat.

Figure 2. *The evolution of the budgetary deficit for the NMS, 2000-2009*



Source: Made by the authors with data from the European Commission, Eurostat.

Graph 3. *The evolution of the budgetary deficit for the OMS, 2000-2009*

It can be noticed that the evolution of the OMS's budgetary balance is a far better match of the overall EU budgetary evolutions than that of the NMS. The NMS, even if they registered constant deficits, presented lower amplitudes of the deficits, ranging from only 1.81% in 2006 to 5.92% in 2009. The OMS displayed significant differences, oscillating from a healthy surplus, of 1% in 2000 to a 6.77% deficit in 2009. In effect, the deficit was partly due to an attempt to combat the effects of the financial crisis and partly because some countries chose to maintain the vast welfare programs, while the budgetary revenues decreased significantly.

In what follows we will try to explain these overall evolutions, taking into account the revenues and expenses' components of the government budgets, both for the OMS as well as for the NMS.

We will study the evolution of budgetary revenues and especially as a share of GDP for overall EU, for the most representative old member states and the most relevant new member states in order to identify the common features as well as the special characteristics of the new and old member states for the interval 2000-2009.

2.2. The evolution of budgetary revenues at EU level

During 2000 and 2009, the budgetary revenues increased by 24.09%, from 4,181 billion Euros in 2000 to 5,194 billion Euros in 2009. This increase may seem impressive, however their weight in the overall EU GDP decreased from 45.4% in 2000 to about 44% in 2009. This was mainly due to the following factors:

- The weight of taxes in the GDP decreased from 27.3% in 2000 to 25.3% in 2009. That represents 142% out of the overall decrease of the share of budgetary revenues in the GDP of 1.4 percentage points. The per se reduction of the weight of taxes in the GDP should not be worrying for the economy (in fact it could improve the competitiveness of European products), but rather for the sustainability of the vast social programs introduced in Western Europe after the second world war (the welfare state);
- The biggest contribution to the overall reduction in the share of taxes in the GDP was due to the evolution of direct taxes, which accounted for 75% of the fore-mentioned decrease in the weight of taxes in the GDP. In fact, the share of direct taxes in the GDP decreased by 1.5 percentage points, from 13.7% in 2000 to 12.2% in 2009. This is partly due to the overall tendency of decreasing the marginal taxation rates, especially in what concerns the direct taxes. The so called fiscal competition (especially in the area of direct taxes) created by the new

member states, with the purpose of attracting direct foreign investments, and manifested through the introduction of flat single taxes in Latvia, Estonia and Lithuania (1994), Slovakia (2004), Romania (2005) and Bulgaria (2008), has determined some old member states to take similar actions. For example, prior to the crisis Germany announced the introduction of a flat 15% company income tax. All this may have contributed to the decrease of the share of taxes (and that of direct taxes) in the GDP, but the main factor was probably the financial crisis that started to produce consequences for the EU budgetary balances since 2007.

The Table 1 presents the evolution of an important component of the direct taxes, the corporate income tax for the NMS and respectively the OMS. Several NMS have the same rate also for the taxation of individuals, through the single tax rate mechanism.

Table 1

The evolution of the corporate income tax rate (%) for the NMS, 2000-2009

	2000	2001	2002	2003	2004	2005	2006	2007	**2008**	**2009**
NMS -12	27.6	27.0	25.3	23.8	21.6	19.7	19.8	19.4	18.7	18.9
OMS - 15	35.4	33.8	32.6	31.9	31.4	30.1	29.6	28.7	27.5	27.2
EU 27	31.9	30.7	29.3	28.3	27.0	25.5	25.3	24.5	23.6	23.5

Source: European Commission – Taxation trends in the EU, 2009.

Table 1 illustrates the tendency of continual reduction in the level of the tax rate for the overall NMS. The most dramatic decrease was registered by Bulgaria, which went from 32.5% in 2000 to 10% in 2009. The only exception is represented by Hungary, which registered a 2 pp increase in 2009 as compared to 2000. For the overall NMS, the decrease is of around 9 pp, from 27.6% in 2000 to 18.9% in 2009.

The situation is almost similar for the OMS. It can be noticed that under the impact of the fiscal competition, created by the NMS, the OMS had to respond so they decreased their average corporate income tax rate by 8.2 pp, similar to the decrease registered by the NMS. The difference is that the decrease of the OMS was from 35.4% to 27.2%, which of course is significantly higher than the 18.9% average level of the NMS in 2009. But the difference is also perfectly justifiable since the two categories of countries have different objectives. The NMS are trying to attract more foreign investment and to promote economic growth after 45 years of economic confusion and stagnation (as the case of Romania, whose real growth was about 0% between 1973 and 1990), whereas the western developed countries reduced their taxation rates in order to avoid a full scale relocation of the productive capital into the NMS areas.

- The indirect taxes also had a downward trend for the period. Their share in GDP decreased from 13.4% in 2000 to 12.8% in 2009. The global financial crisis took its toll on the level of indirect taxes collected as a result of the decreased consumption;
- The only gain was marked by the social contributions, whose share in GDP actually increased from 13.9% in 2000 to 14.2% in 2009. This evolution is explained through the increase in the level of social contributions paid by the companies and individuals (due to the ageing problem and the increased pensions). In 2008 and 2009 some countries tried to increase the budgetary revenues by the mean of social contributions, as they seem to be easier to collect.

2.3. The evolution of budgetary expenses at EU level

The budgetary expenses have shown a consistent increase at EU level, both in absolute value and as share in the GDP, as presented in Table 2 below. If we compare the evolution of the budgetary expenses with the evolution of budgetary revenues, presented above, we can find that the elasticity of the expenses is higher than one, telling us once more that the path taken by most EU government is unsustainable in the current and future economic context.

At EU level the elasticity of the government expenses to the GDP for the 2000-2007 period is 1.0421:

$$E_{gdp07/00} = \frac{\Delta\%Exp}{\Delta\%GDP} = \frac{35.81\%}{34.36\%} = 1.0421$$

At EU level the elasticity of the government expenses to government revenues for the 2000-2007 period is 1.09536:

$$E_{rev07/00} = \frac{\Delta\%Exp}{\Delta\%Rev} = \frac{35.81\%}{32.69\%} = 1.09536$$

If we refer to the 2007-2009 interval we even get negative elasticity, as follows:

$$E_{gdp09/07} = \frac{\Delta\%Exp}{\Delta\%GDP} = \frac{5.95\%}{-4.52\%} = -1.3148$$

$$E_{rev09/07} = \frac{\Delta\%Exp}{\Delta\%Rev} = \frac{5.95\%}{-6.48\%} = -0.91847$$

Table 2 below presents the evolution of government expenses as share in the GDP for the EU countries in the 2000-2009 period.

Table 2

The evolution of the weight of government expenses as share in the GDP, 2000 – 2009

	2000	2006	2007	2008	2009
EU-27	45.2	46.7	46	46.8	50.7
OMS-15	45.5	45.2	44.7	46.0	50.6
NMS 12	41.7	40.5	39.9	41.1	44.5

Source: The European Commission, Government Finance Statistics, no. 1/2010.

These results show that the government expenses continued to grow in 2008 and 2009 even if both the GDP and the government revenues decreased as a result of the global financial crisis. The result would be normal should it express the efforts of governments of EU countries of spending more money in times of economic downturn, especially by making investments in the infrastructure, environment or other public investment projects. The data are worrying if we acknowledge that a great part of the imbalance comes from maintaining a high level of social benefits, part of the welfare state system and from the compensation of the public employees. The situation is obviously worse off for the NMS that are trying to match the OMS' developed social systems but with far fewer resources. The NMS have to balance the need for economic development (which often means attracting more foreign investments by lowering the level of direct taxes) with the need for ensuring better social conditions for their citizens (which involves higher governmental expenses). Twenty years ago Kornai (1990) described the situation of the NMS as the "premature welfare state". In the communist times, many citizens of these countries were used to get a lot of public goods and they did all they could to preserve those benefits, without too much concern for the efforts put up by their countries in order to adapt to the tough requirements of the market economy. Other NMS citizens resorted to the free rider behavior or to tax evasion in order to access a better living standard. Tax evasion generated something that Browning (1976) called the marginal cost of public funds, which places a higher tax pressure upon the honest taxpayers, even the official taxation rate appears to be lower in the NMS.

The NMS joined the EU with structural fiscal deficits, and now confront on the one hand, with high macroeconomic vulnerabilities, fiscal imbalances and institutional inadequacies; on the other hand the EU membership requires the implementation of strong fiscal position for achieving the reform in tax and pension systems, labour market, subsidy programs, under conditions of increasing expenditure pressures related to an ageing population within a sustainable medium- to long-term macro-fiscal framework (Schwartz et al., 2008). As countries emerge from the transitional recession, they need to manage the

normal economic cycle and answer the question: how should the structural budget deficit be managed?

This is a new situation for the NMS given that prior to accession their fiscal situation was not the subject of regular and binding surveillance. Furthermore, the NMS are obliged by the Accession Treaty to join the Economic and Monetary Union (EMU) at some moment, and meeting the fiscal convergence criteria is perhaps the most serious obstacle along this road, for some EMU candidates at least (Dabrowski et al., 2006).

3. Conclusions

The current problems faced by most of the NMS and by a good share of the OMS are not simply of a financial or fiscal nature. The solving of the current global crisis and of the financial budgetary and debt problems of EU countries requires a new economic and financial strategy, both in the private and in the public sector with a strong orientation towards creativity, technology, eco-sustainability, fiscal consolidation and solving of the ageing problem.

The somewhat unusual thing about the latest financial evolution is that the countries that were the hardest hit by the effects of the economic crisis were the countries that registered the highest economic growth in the 2000-2009 period, such as Romania, Greece, Spain or Hungary. That happened because these countries did not manage to capitalize on their growth, respectively they did not manage to contain the expansion of public expenditures and they did not take consistent measures for fiscal consolidation.

Government deficits have deteriorated markedly, reaching levels unprecedented in recent times in the EU. With real economic growth having fallen to -4.2% in 2009, there has been an automatic decrease in revenues and increase in spending as a share of GDP.

Support measures introduced to stimulate both the aggregate demand and the financial sectors have added to the burden on the public finances. The majority of stimulus measures are fortunately temporary and planned to expire by 2011. These measures have had positive effects on employment and economic activity during the crisis. However, once economic growth resumes, such measures, if left in place, would lead to an intolerable burden for the public finances. Also, the policy of very cheap money cannot continue indefinitely as it can ensure an easy way to the financing even for the companies that do not actually fit in the current global trends for eco, bio and sustainable development.

The crisis has shown that the divergent growth patterns in the EU and growing macroeconomic imbalances implied contingent budgetary risks. In particular, the countries that suffered the greatest deterioration in their public finances during the crisis had typically experienced increasing external imbalances and booming credit and domestic demand in the pre-crisis years, while the countries that suffered the smallest deterioration generally had displayed stable or falling macro-financial risks. Especially in the NMS, credit market has played a key role in this context by feeding persistently buoyant tax revenues and hence allowing excessive public expenditure growth during the booms, followed by large tax revenue shortfalls. In the OMS, the observed deterioration in budgetary positions was largely the result of a higher expenditure-to-GDP ratio which was mainly due to higher social benefits and transfers in the analyzed period.

As regards the needed fiscal consolidation, we consider that expenditure cuts are more effective and have a more long-lasting impact than consolidation by tax increases. However, the consolidation requirements from many EU member states make it virtually impossible to achieve it by a sustainable reduction of expenditures only. Tax-based consolidation, especially by broadening tax bases and simplifying tax systems, can also prove efficient when starting tax-to-GDP ratios are relatively low and implementation is gradual. The appropriate mix between expenditures and revenues depends on the characteristics of the country concerned.

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SUBSIDIARITY PRINCIPLE IN THE EUROPEAN UNION GOVERNANCE

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Abstract. *The issue of subsidiarity principle is increasingly important as the more extensive discussions were held on sharing responsibilities between Community and national level. This leads to the need to establish an optimal balance between skills in order to comply with the national sovereignty of each state in developing and applying its own fiscal policy, economic. The purpose of this study is to investigate the principle of subsidiarity in the context of EU governance.*

Keywords: subsidiarity; governance; European Union; fiscal federalism; public services.

JEL Codes: F59, H11, H40.
REL Codes: 10I, 13G, 13H.

The problem of the principle of subsidiarity is tightly connected to the one of the competences' partitioning between the Community and national levels, to that of the power of Brussels on the line of the common settlements and policies, to that of the decentralization and reform of some Community policies in order to diminish the democratic deficit and to bring together the citizens' requirements and the activity of the European institutions. The Community institutions wish more power, inclusively on the line of the coordination of the budgetary or fiscal policies, of the manpower policies and the social field policies, and the Member States wonder what is the best report between the competencies at the Community level and those at the national level, because the danger of the overcrowding at the Comunity level may be opposed to the one of the tight, limited, superficial approach at the national, regional and local level.(1)

Various authors, among whom Klaus Dirk Henke (2006), Jacques Pelkmans (2006), Ian Cooper (2003) bring into discussion the framework of the economic policy and the responsibilities belonging to a government, as well as the report between the private and public goods, between market and public authorities as major settlement and coordination factor. In most of the cases the economic activities are organized within the private sector and develop through the intermediary of the market, but due to the public goods/services the capitalist economy has a mix character. In principle, the market should ensure goods and services to population, but there are failures of the market as well as failures of the governing. The settlement process may be justified by the fact that the market forces may ensure a major form of coordination or settlement through the intermediary of competition. Liberalization, settlement, privatization means an increased role of competition and a diminished role of public authorities. In its turn, competition is clearly regulated and supervised at the Community level by the Commission as well as at the national level by the responsible authority or institution.(2)

As Maastricht Treaty specifies we may speak about an innovating approach, very different of the principle of subsidiarity. The novelty elements which the Maastricht Treaty brings as to the problem of the principle of subsidiarity are generally connected to five essential aspects:

1. the idea of West-European political union;
2. the introduction of a common European currency at the latest in 1999;

3. the European civil rights;
4. the new competencies of the European Community;
5. the intensification of the Community protection of consumers etc.

One of the most delicate points of the European construction is, indeed, to find the best criterion for the repartition of competencies between the different categories of collectivity (between the European Community institutions) and those of the regions which are some of their composition, meaning through the application of the principle of subsidiarity. From our point of view the most delicate aspect, that one related to « assignment » and competencies, is nevertheless vaguely discussed in the treaty, leaving space for many interpretations. The objectives to which the European Chart of Local Governing refers are expressed in a relatively general manner at Articles 2 and 3 to wit: „*to introduce in the treaty clear rules for the repartition of competencies between Community and Member States, to allow the finding of an equilibrium, at the Community level, between those actions by which it is followed to advance in the integration process and thus organizing a cooperation or coordination between Member States; to stimulate the issue of Community texts less complex and a self-limiting of the Community institutions; to concentrate the legislative effort upon some matters needing an intervention of the Community for integration and efficacy reasons; to try the association of the citizen at the decision-making process establishing at the Community level those guidelines which shall be put into practice by each Member State according to procedures which are its own and which shall allow to integrate the cultural and social or regional diversities specific to each of the Member State (n.n. from the document text)"*. In this context there shall have to be brought significant clarifications and additions for the applicability to be outside the danger of ambiguity for the future, too.

The transfer of responsibilities in the matter of political decision from the national level to the Community one, where the national governments may promote their interests in the governmental institutions – the European Council and the Council of Ministers, has reasons connected to the sometimes difficult reports between the main national institution (executive and parliament), to the unpopular character of some decisions, to the predominance of the Community laws upon the national ones. On the other hand the settlement at national, regional and local level (establishment of decentralized rules) is meant to better take into account the local conditions and interests (of the citizens), to promote specific initiatives and rules, to limit the impact of corruption and discrete decisions (Boscheck, 2006). In the approach of the themes of subsidiarity there are brought into discussion terms as economic or fiscal federalism, allocation of functions, responsibilities or competencies, the decision-making process, the role of the economies of scale and of the training effects (spillovers).

Seen more or less as a co federal or non-cofederal entity, EU may be analyzed through the federalist theories and models in order to better highlight the interactions between the governing levels and the application of the principle of subsidiarity. In the opinion of Ralf Boscheck, usually the federal models underline the interaction of four sets of variables:

- the levels of public authorities (central, regional, local);
- the levels of the local representation at the centre through the delegation or choice of sole representatives;
- the allocation (constitutional) of political responsibilities on the line of the supply of public goods with national or particular character;
- the decision-making process by unanimity or majority.

The matter of the public functions accomplished at a certain level of public authorities, as well as that of the level to which are realised the public goods is reported to the principle of subsidiarity. The size of the public sector and implicitly the power of the public institutions is difficult to establish, especially if it is also had in view the unhappy experience of the former

communist states. Liberalization, privatization and deregulation have visibly restricted the proportions of the public sector, but have eliminated the state's role in the supervision and settlement of the free market game's rules.(3) Authors like Ralf Boscheck, J.Buchanan, R.Musgrave, W.Oates consider that once the settlement framework established in one country the optimal volume and structure of the public sector would have no relevance and criteria must be established in order to decide at what level the public goods must be ensured based on allocation, distribution and stability of public functions. If as concerns the external policy and the policy for the environement protection the central level seems to be the most adequate as for the structural or regional policy the application of the principle of subsidiarity is clearly necessary. Some authors state the idea that there is a federal structure of the states (different levels of the public administration), within the meaning of the territorial division, which would influence the optimal allocation of ressources and the local, regional, national, European, global specific of public goods.

H. Zimmermann and K.D. Henke have tried to identify and synthesize the criteria for the allocation of the functions for the two levels of the governing (central and local) based on some economic objectives which may or not be realised at central or local level. The data from the below table are meant to illustrate these allocation criteria.

Table 1

Criteria for the allocation of functions at the level of the central-local public authorities

Decision about centralization / Economic objectives	Realization of objectives at central level	Realization of objectives at local level
Efficient allocation		
The public offer adapted to individual preferences		
- the principle of fiscal equivalence (optimal allocation of resources)	(x)	x
- the principle of subsidiarity		x
- the insurance of regional training effects		x
Promotion of the innovations in the public sector		x
Production at the lowest possible costs (the insurance of economies of scale and the divisibility of public goods)	x	x
Distributive justice	x	x
Establishment of the economic cycle	x	
Stimulation of the economic growth	x	(x)

Source: H. Zimmermann, K.-D Henke, Finnazwisenschaft. Eine Einführung in die Lehre von der öffentlichen Finanzwirtschaft, New Edition, Munchen, 2005.

The administrative structure on regions, counties or departments, common or counties, municipalities of the EU Member States is the one which would be put into discussion by the principle of the fiscal equivalence or optimal allocation of public resources, and the creation of euro regions would represent a modality to promote the cooperation and to better accomplish the public functions, implicitly for the better allocation of resources.

The big problem related to subsidiarity is the transfer of the fiscal powers from the national level to the Community level, having connection to the principle of fiscal equivalence. The fear of (fiscal) federalization is evident in some European capitals and does not allow the passage to a sole fiscal policy, which has its logic related to the free circulation of goods and factors.

Subsidiarity would be in the opinion of Jacques Pelkmans (2006) a fundamental principle for the EU institution structure and for the ensurance of the political legitimacy of powers and activities of the European institutions. The principle introduced by the Maastricht

Treaty was not duly implemented neither duly defined, and the debates on its theme have intensified during the drawing-up of the constitutional treaty. Subsidiarity was connected not only to the Community governing method but also to the deepening degree of integration. The Constitutional Treaty gives it a special importance, after the 1997 Amsterdam Treaty has introduced it in a separated protocol (Protocol concerning subsidiarity and proportionality) (Iancu, 2003). From another point of view, there are voices stating that subsidiarity is the word which has saved the Maastricht Treaty and, thus, allowed the birth of the European Union.

At the opposite pole, others have categorically condemned the same solution: *„(...) the introduction of the principle of subsidiarity in the Maastricht Treaty was a backwards step. Without offering a remedy for the Community lacks, it risks to destroy hardly obtained realizations. It shall weaken the Community and shall cease the integration process. It shall give satisfaction to those who would like to see the Community not approaching to a really federative structure, but estranging from this one"*[(4)].

Jacques Pelkmans (2006) considers nevertheless that subsidiarity should be applied in the existent constitutional and institutional framework. The European Commission grants it an explicit recognition in the context of its efforts to perfect and simplify the Community regulations and to decentralize some common policies. Many times within the EU Council, especially in its committees, headed by COREPER, subsidiarity is invoked in order to oppose the national interests to the Community interests promoted by the Commission. But also for many national and European deputies subsidiarity would be a political instrument, used especially in season than based on a profound analysis. Few actions related to the infringement or non-observance of this principle have been forwarded to the European Court of Justice from Luxemburg (Boscheck, 2006). The Constitutional Treaty sanctions the important role of the national parliaments in the application of the principle of subsidiarity through the conformity opinion given by them to the legislative initiatives of the European Commission within 6 weeks. The evaluation of the legislative initiaties of 27 parliaments is a difficult operation needing a common methodology, task which could be solved by COSAC (Community and European Affairs Committees of Parliaments of the European Union).

Is subsidiarity an occasion not only of political debates but also of fights for increased attributions or for the keeping of some significant powers by the local, regional and national authorities? Does exist the idea, maybe controversial, that subsidiarity has no legal consistency, that it would be more a political principle and would contain traps and even some needies? (Prisecaru, Idu, 2003)

Jacques Pelkmans sees the approach of the matter of subsidiarity by the systematic application of the subsidiarity test. There is brought into discussion the idea of the test functionality, what is the place and role of the test, what is the legal base of the transfer of powers at Community level (grounded on the principle of awarding), what is the optimal allocation of competencies, the need to make the test lose its political character, the refuse to consider centralization a simply political act. The test would be useful if it is first of all accepted as a functional instrument allowing the information of the decision factors upon the costs and benefits of centralization or decentralization. The test may be functional but the decisions are political because they belong to some political decision-making factors and from there the requirement of the political legitimacy.

Article 5 from the EC Treaty refers to the principles of subsidiarity and proportionality. In the field of the distributed competencies the Community must show the need to commonly act by the existence of the economies of scale and cross-border externalities, and any action must be proportional to the followed objective (the costs of the common actions must be minimized). The centralization degree is another matter to analyze, it may vary from the simple cooperation or common responsibilities to the Community method

or to the delegation of attributions to the Commission, autonomous or independent European agencies (European Central Bank). The centralization degree depends on the cooperation credibility, on the experience in the field, on its history, on its sustainability. The lack of credibility or the reduced credibility would encourage a high degree of centralization. Actually there are opposed here the Community method, based on centralization, with the open coordination method, based on decentralization. The first one applies to the exclusive and distributed competencies of the EU, the second one applies less to the distributed competencies and more to the exclusive competencies of Member States, but where the Community institutions have the possibility of coordination (Iancu, 2003).

Jacques Pelkmans (2006) considers that the subsidiarity test refers to the benefits of some relevant centralization degrees and for this four phases would exist. The first would be the identification of the measure framing in the distributed competencies, the second would be the application of the criteria concerning the economies of scale and the cross-border externalities, the third would be the verification of phesability of the consolidated or reinforced cooperation. If the first two phases are accomplished, but the third not, then the competence would be at the Community level, but if the third phase is confirmed when the Community level does not have to be implied or shall be implied only in very strict conditions. If this fourth phase indicates the centralization requirement the application of a test of proportionality is necessary in order to minimalize the costs of centralization (Bosheck, 2006).

The test of subsidiarity could be used for the optimal allocation of the public economic functions on various levels of the EU governing, an easier process than the allocation of the non-economic functions (second and third pillars). The liberalization process had led to the accentuation of the centralization degree of some specific competition and regulating aspects for the adequate functioning of the single market. The mutual recognition has been used in order to combine the free circulation with the settlements at the national level. The debates are vehement as concerns the implication of subsidiarity in the creation of the internal market for the network industries (public utilities) and in the creation of an European market of manpower. If the markets of manpower keep a national character the desideratum of the free circulation of manpower remains an illusory one. Subsidiarity would not be correctly applied if the cross-border externalities are excluded and as a result the necessity of commonly acting. There are fields, as health, mass media, education, in which the decision-making power is at national level, but where the new technologies and the cross-border externalities fully manifest and impose decisions at supranational level, because subsidiarity is first of all a logic for the repartition of some complementary competencies, but different and, consequently, non-equivalent between them and which cannot be changed between the two levels: the one of the national authorities and the one of the jurisdictional mechanism from Strasbourg. While within the European Union subsidiarity allows to this one to take the initiative, intervening in a field in which the competencies are distributed between it and Member States, the convention knows only competencies, distributed indeed, but in which the primary action is always reserved to the national authorities (Prisecaru, Idu, 2003). The convention only reinforces the protection of human rights at the national level, doubling it by a control system which operates as a „safety net" . The European Court of Human Rights cannot replace the national authorities and cannot take the initiative. In this context, we may speak about a common responsibility, composed of the primary responsibility of the national authorities, and the last one of the bodies instituted by the convention and invested by the convention with competencies, in this case the Court and Committee of Ministers, as a supervision body of judgments' enforcement (Boshech, 2006).

Actually, from what has been presented above, one may notice that subsidiarity is a problem for the distribution of attributions and competencies between the unity generically called „centre" and the competent unities, as well as for the observance of this division. The experiente of the federal states as concerns the international repartition of competencies is also

relevant by the fact that, as less as possible may might be testes such a thesis, the European Union is, from its beginnings of ’50, in a permanent process of gradual federalization, even if such an objective is not declared as such and there is no calendar for its realization. The union is in a state of permanent ebullition at the level of its constitutional framework, meaning the one of the constitutive treaties, which constitutes a „curse” and a privilege. The „curse” is related to the founding parents and to the character sui generis of the EU as international organization for the integration within which the final objectives could have never been precisely defined and declared because of the political sensitiveness of such a subject and because of the Union complexity and realities governing them. The privilege consists of its capacity to adapt, by this transforms, to the realities of each stage from its evolution, to the realities inside it as well as to those from the world in which it is.

The comparison between the economic federalism and subsidiarity must have in view not only the criteria of the economies of scale and cross-border externalities but also the fact that the allocation of the competencies and resources in a federal entity is not the same thing as that of the EU. Subsidiarity would leave from the notion that any policy reflects the electors’ preferences and is best realized when most approaches them. Analyses of the type cost/benefit would fundament the transfer of the decision-making from an inferior level to a superior one. Values of the type of nationality, cultural identity, fundamental rights, solidarity must more had in view and less the peculiarly expressed costs for the appreciation of the transfer of competencies in delicate fields as those of the external policy and defense. (Sută, 2006).

Jacques Pelkmans introduces the concept of subsidiarity in the analysis of the equity and macroeconomic stabilization matters. Equity is connected to the transfer of resources, especially financial, through the cohesion policy and the structural one and any progress to a social union would imply the transfer of prerogatives in the field of social fees and taxes. In the field of the monetary union, with 13 members, there would be needed some credible regims of fiscal restrictions and the understanding of the fact that a common fiscal stabilization is possible only in a political union. Any such union would mean another approach of the analysis cost/benefit related to a functional test of subsidiarity, statement which makes the object of many divergent discussions and at present. (5)

As a conclusion, we must have in view the following: the principle of subsidiarity is a central principle of the supranational European law, being essential in the system of the human rights European protection as well as in that of the European Community law. This principle **is governed by** the idea according to which the competencies must be exercised at a level as closer as possible to citizens. The putting into application and transposition in reality of this principle considered regulating is essential if a development of the Community is wanted with the immediate support of its citizens. That is why all the Community institutions must give priority to such an approach, because subsidiarity is not only a way by which the human person brings up-to-date through the intermediary of the political participation his natural dignity, but it is also *a fuctional way to understand and organize power, a principle according to which the state itself is invited to operate.*

This principle, which is found at Article 5 paragraph 2 of the ECT also allows the freedom for the fields which are not of the exclusive competence of the Union to become active only if the followed objectives cannot be reached in a satisfactory measure at the national level by each of the Member States. Having in view all these and considering the dimensions and/or effects of the aimed action, this may be better realized at the Community level. The idea of subsidiarity, which is spread often enough at present on the European plan although it appeared in far-off past, being attributed to Aristotle, is related to the idea of federalization. We ask ourselves whether, for the following 25 years, it is better to redress the economies according to the worldwide shock from this millennium beginning or we have to think again the new federal geopolitical structure of Europe? We ask this question to ourselves and

consider important to point out that, although this idea is related to the political and legal traditions of several states, especially the Germanic ones, the perspective of applying subsidiarity has entered on the agenda of the analysts and European officials, with this new approach it has been accepted by those who wanted that Europe become a federation, as well as by the states which pleaded for the total observance of the component states' autonomy. Subsidiarity may be considered fundamental for the future evolution of the European Community because it constitutes a delimitation of the tasks between the Community and its members.

The solid utilization of the principle of subsidiarity in the legislative activity and how drawing-up of the policies at the EU level would make necessary a functional test of subsidiarity, which would allow a more correct information of the political decision-making factors about the range of arguments and about the costs and benefits of the decision centralization and would facilitate the activity of the national parliaments in the perspective of the conformity opinion. If we refer to the text of Treaty there results the fact that the principle of subsidiarity has two major characteristics regulation the exercise of the competencies granted by this treaty:

- limits the Community intervention when the problem may be satisfactorily solved by Member states
- Implies a Community action when this one is necessary due to the dimensions of the problems or incapacity of Member States to treat it efficiently.

As we mentioned above, Europe is a continent composed of decentralized local collectivities and that is why the accent is put on decentralization, because this one allows the development of contacts which the hyper centralized state could have not promoted and which it could have not tolerated anyway. There may be thus subscribe to the idea saying that: decentralization is one of the roads leading to a type of *European normality* to which all the states participate for the accomplishment of this purpose. But quoting an excellent doctrinaire (R. Kovar), we may state that subsidiarity, mitigates, divides, and deranges: because of its singularity". Who's right?

„Actually the central reason of subsidiarity is that the political power should intervene only at the extent to which the society and its constitutive parts – the individual, family, local communities, larger social groups, inclusively the professional groups – were not capable to satisfy the different necessities. Federalization becomes thus more than a simple principle of institutional organization and applies, first of all, to the relation between the individual and the society and then to the relation between the society and the political, power institutions, finally supplying inspiration for a division of the power between the base and the top." (Chantal Millon-Delsol).

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MULTILEVEL GOVERNANCE – EUROPEAN UNION CASE

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Abstract. *Classification allows institutions a better understanding of their role in the economy and society, mechanisms for establishing, amending and abolishing the institutions of the determinants of institutional change, the relationship between institutions and their relationships with the people and civil society. In order to measure and monitor the institutional development at national level it has been imposed a new concept in the mid 90s based on governance. The purpose of this study is to investigate the elevation EU multilevel governance.*

Keywords: governance; European Union; neo-institution; institutions.

JEL Codes: B52, H83, H87.
REL Codes: 1H, 13A, 16I.

1. The concept of governance in the vision of the neo institution

The classification of the institutions allows a better understanding of their role in the economy and society, of the mechanisms for the setting-up, amendment and dissolution of the institutions, of the factors determining the institutional changes, the relations between institutions and their reports to the population or civil society. In order to measure the institutional development and to monitor the institutional construction at national level there has been imposed at the middle of the ’90s the concept of *governance*, which is based on the theoretical foundations of the historical neo-institution. The neo-institution current or school has been strongly imposed in the area of the social and economic sciences in the last two decades, a proof being the fourth laureates of the Nobel Prize for economy (Ronald Coase, 1991, Douglass, 1993, Williamson, Ostrom, 2009). Nevertheless the concept of governance has an interdisciplinary nature, many interpretations or definitions and it is difficult to decipher all its complexity and proportion. In the opinion of R. Rhodes (1996), the social sciences attribute to the concept of governance six different meanings: the minimal state, the corporative governance, the new public management, the good governance, social-cybernetic systems, and self-organized networks.

The governance at the national level means the behavior and performance of the public authorities, especially central, but some authors limit governance to the sphere of the government, ministries and governmental agencies, but this one represents a narrow and limited approach, because at any modern and democratic governing or governance system also participate public non-governmental authorities, like the public authorities not subordinated to government, the regional and local authorities. The concept of governance usually covers not only the public actors but also the private ones, not only traditional governance ways or different types of hierarchic structures but also networks of public and/or private actors, as well as various arrangements for the exercise of power or authority.

According to D.Kaufmann (1999), governance would represent the traditions (non-official institutions) and the official institutions exercising the authority in a country. This means that the central public authorities must formulate and implement policies and strategies, but this product should imply private actors (interests groups) and the civil society, by institutional arrangements and by their consistent implication in the economic and social governing. Daniel Kaufmann (2003) also sees a major gap in the governance reform, within

the meaning of an increasing divergence between the technocratic ability of the political decision factors to implement traditional economic policies and its incapacity or lack of the ability to apply reforms that will impose institutional and policies' changes. Thus a governance gap would exist in many countries, the economic and incomes increase not depending on the governance quality. For Daniel Kaufmann it is obvious the slow progress or the counter-performance of the governance in most of the countries and regions, which would impose a thinking on review about it especially on the line of the private sector role for the help of the public authorities for the perfecting of the management and public policies.

The definitions of the World Bank and European Commissions are maybe the most adequate in order to understand and characterize the concept of governance, the World Bank (1994) defining governance as the way in which power is exercised in the management of the economic and social resources, and the European Commission (2001) characterizing the European multi-level governance as an assembly of regulations, processes, behaviors affecting the powers exercised within EU, but also as a complex system of interactions between the Community and national institutions (vertical level), between public and private actors (horizontal level). The principles of the good governance at the Community level defined in the 2001 White Book of the European Governance are: opening, participation, responsibility, efficacy, coherence, being applicable first of all to the European institutions.

Governance is often associated to the management of public resources, but nevertheless its sphere is undoubtedly more comprehensive and any definition is not perfect and cannot cover all the aspects of this concept. Depending on the level of performances, governance may be characterized as performant or good and as non-performant or bad. There are several criteria for the appreciation of performances, inclusively the accomplishment of the EU adhesion criteria (the fourth sets). The good governance has, according to the UNO Economic and Social Commission, the following characteristics: the direct or indirect participation of the population or civil society to governing, the rule of law or the impartial application of the law by independent authorities, the transparency or accessibility of the information, the availability of the institutions towards solicitations, the reaching of a wide concord on the essential problems and on the long-term development perspectives, the equity and social inclusion, the efficacy and efficiency, the responsibility towards citizens, partners, other organizations or institutions.

Weak governance reflects the exaggerated interventions of the government in the economic and social field, the excessive, inefficient or preferential regulations, the lack of transparency and responsibility, corruption and the use in the personal interest of the state authorities ineffective policies and strategies, the braking of the institutional and political reforms, the distortion of the competition climate and the affectation of the economic performances. A concept introduced by M.Olson (1965, 1982) – the state „seizure" – indicate a certain dimension of corruption, which BERD has defined as the influence of the official regulations by private companies, for their benefit, by the bribe of some governmental officials and civil servants. In a transition period good governance is reflected in the speed, quality and profoundness of the economic and institutional reforms, in the consolidation of the free market structures, in the economic and social performance, in the increase of the standard of living. If the institutional construction leads to good governance, it should be reflected in the quality of the policies, strategies, regulations promoted by the institutions, in their impact upon the economy, society, population. J. Ahrens (2002) identifies four components of the institutional construction: (i) the increase of the governing capacity and of the state competencies concerning the protection of the ownership rights, the observance of the contractual conditions, the implementation of the economic reforms; (ii) the establishment of the limits for the state authority, with the purpose to avoid the abusive and distorting behavior; (iii) the constitution of technical, administrative, political capabilities and competences for the implementation of the policies and reforms; (iv) the creation of the economic institutions for the markets support and consolidation.

If the institutional construction and development are at the base of good governance, then the institutional changes are extremely important for any state or governing structure. In the case of the transition economies, the application of the concept of good governance allows the evaluation of the quality of the government activity and of the economic and social policies efficiency.

2. The concept of multilevel governance

The European Community has been described by various authors as an atypical and original construction, being characterized by an unique revolutionary form of governance, which needs the use of some new concepts, capable to define the complexity and particularities of this new governing system. Gary Marks (1993) launches the concept of multi-level governance, to which a significant contributions also brought the authors Hooghe, Grande, Scharpf, Kohler-Koch, Leibfried, Pierson, Peters, Pierre, Jachtenfuchs, Héritier, Benz, Eberlein, J.Peterson, J Weiler. Scharpf appreciated in 1999 that this concept, contrary to the nonfunctional theory and to the theory of the liberal inter-governance, reveals two essential problems for the Community governance, like the democratic legitimacy of the Community political process and the distribution of the power associated to the capacity of solving the problems by the Community decision-making factors (policy makers).

For the Community governing system there have been used for the analysis the role of the institutions and other concepts related to that of the multilevel governing system. One of the concepts is that of the governance of the network type used by Börzel in 1997, with the variants of state network (Castells, 1998), typology network of governance (Kohler-Koch, 1999), and governing system in the form (type) of network (Ansell, 2000). With some small inherent shading, all the respective approaches underline the fact that the institutional architecture and the process for the drawing up of the policies in EU are characterized by two dimensions:

a) *Political dimension*, EU being dominated by a non-hierarchic (political) decision-making way, and the actors from the interior levels – national and sub national – constitute an integral part of the decision process at the supranational level;

b) *Social dimension*, the participation at the decision-making process extends beyond the red-tapits entitled to do this and the private actors – lobby, interests groups, NOG – play a prominent role in the drawing up of public policies. Nevertheless we must state that actors of the lobbyists and interests groups type cannot be easily assimilated to the so-called civil society, as are the NOG and syndicates, for instance, and as for the importance of the role they play the opinions are divergent enough, with solid pro and contra arguments, depending on the Community policies brought into discussion.

The structure in which the state and the society organization is vertically and horizontally disintegrated, like in pluralism, but connected by cooperative exchange, like in corporatism is considered a governing system of the network type (Ansell, 2000). The features of the governance of the network type are also met at the national level, where there are no ideal hierarchies and where the interests groups are an important factor in the process for the polices elaboration, nevertheless in the EU case they are essential for revealing the specific of the Community governance.

In the EU case the application of the concept governance of the network type has also some minuses, among which the most important would be the neglection of the institutional variables. The essential role of the institutions in the process for the policies drawing up implementation has been revealed by the promoters of neo-institution within the political, economic, social sciences (March, Olson, Hall, Taylor), who consider that the institutions are not only places where the political actors carry on their activity but play a special active role by establishing rules and regulations, by allocating resources and exercising a certain authority, by structuring the opportunities for the political action.

With some small differences the partisans of the concept of the governing of the network type as well as those of the multi-level governing system have also common opinions about the Community governing system and the aspects of the Community political process, especially related to the power fragmentation and decentralization, the interdependence between actors and institutions, but also concerning the efficacy, the decision power and democratic responsibility (Grande, 2001). A multilevel governing system of the network type must be analyzed as concerns its efficient functioning, those who have the decision power and the beneficiaries of policies, its complexity and differentiation, of the democratic responsibility of the implied institutions or actors.

Simon Bulmer has accepted the idea that in the explanation of the governing system or Community governance equation behind the concepts of network and multilevel there were brought their contribution concepts or theories of the type of neo-institution liberal inter-governmental of Moravcsik, the fusion thesis of Wessels (Bulmer, 2004).

The Community governing system has a high degree of differentiation and integration vertically and horizontally, starting from such situations, the concept of multilevel governance takes its vigor from the analysis of the institutional framework of the Community policies elaboration and of the Community political process. The political power is distributed over various territorial levels and over various functional decision-making spheres, exceeding the formal jurisdictions, being constituted from a great number of independent and interdependent functionally legal actors, decision-making institutions and spheres. Chris Ansell considers that the multi-level governance is characterized by the interpenetration of some superposed networks simultaneously acting in multiple functional spheres and at multiple geographical scales (Ansell, 2000). The institutional differentiation is found in hierarchic organizations, but not any multilevel system is hierarchic.

The difference between EU and other international institutional organizations is not represented by the internal differentiation or by the fact that it is a multilevel system but because it represents a different type of multi-level system with three main characteristics (Marks, Hooghe, Grande). Carefully avoiding the doctrinaire approaches and the expression of the preference for one of the fundamental theories of the European integration, the European Commission was many times interested in the analysis of the Community governance and its perfecting modalities.

The implied actors and their role significantly appear in the consecrated doctrinaire approaches – federalism, neo-functional and supra-national, inter-governmental – which are more significantly focused on the dynamic of the integration process, the influence factors, the reports between the national states and the Community institutions, but less on the particularities of the Community governing system. For instance, Caporaso and Keller, two advocates of inter-governmental, have recognized that the existent institutional structure and its amendments influence the policies and the decision-making processes within the European Community, implicitly the functioning of the Community governing system. The theorists of federalism try to find some analogies between the classic federalism and the Community *neo-federalism* based on the theory of the multilevel or multilayer governing system.

The term of united Europe is associated not only to a supranational economic Community but also to the political, military, social, cultural integration, in spite of the strong opposition of the nationalists disguised in anti-Europeans, sovereigns, anti-federalists, but the united Europe does not mean only a geographically limited regional Community but also a pan-European Community which should include a great diversity of peoples and nations, cultures and religions. For Maastricht the integration process has exceeded the low politics sphere (economic and social) penetrating into the high politics sphere (external, defense, justice and internal affairs policy – 1 and 2 EU pillars).

Unity in diversity, this seems to be the guiding slogan for those who want a united Europe, but this principle was also successfully implemented in USA.

Next to the institutionalism theory the concept of multilevel governance has been relatively recently introduced in order to counteract the minuses of the neo-functional theory and especially of the inter-governmental one, which have underestimated the role of some actors and have super evaluated the role of others. Gary Marks, Liesbet Hooghe and Edgar Grande have underlined three main features of the multi-level governance:

a) Institutional architecture without hierarchic differentiation, which means that the actors and fields are not hierarchically differentiated as in the case of the traditional intergovernmental relations or organizations. Edgar Grande appreciates that the supranational institutions are not hierarchically superior to Member States and these last ones and the regions within them are not subordinated to the supranational institutions. The relations between the different levels and fields are characterized by a high degree of institutional and functional interdependence. This interdependence between EU, Member States and the regions within them represent a close institutional coupling between the supranational and national institutions, which is also based on two essential structural principles of the Community law: a) the principle of the cooperation between EU and Member States b) the principle of competencies repartition, where we also find subsisdiarity.

A coordination of the national policies is made at the supranational level by the open coordination method and the great guidelines, let alone the common policies where the authority of the supranational level on the line of the elaboration and supervision of their implementation is evident. Irrespective of the implied exclusively Community competencies, distributed in common, exclusively national, there is a strong interaction between the governance levels in the decision-making process, but there also appears the natural question whether the sub national level has an important role in the decision-making process at the Community level.

b) The non-hierarchic character of the decision-making process, process based on negotiations between the main actors and on the principle of concord and non-majority voting. In the case of an integrated institutional arrangement the hierarchic character would affect the legitimacy of decisions and would raise the cost of their implementation. In the decisions or fields of major importance an agreement is usually reached based on concord. B. Kohler-Koch sees the Community system as a non-majority one based on large negotiations with the implication of the Community institutions as well as of the economic and social actors, the national governments and the EU executive (Commission) not representing the hierarchic climax in the decision-making process but only mediators in the arbitration of some concurrent interests and the catalysts of the common policies design.

In the Council of Ministers and the European Council imposing the qualified majority voting raises the question of the consensual character of the decision-making process, which shall be maintained in the important fields and especially as concerns the European Council. The qualified majority voting supplement this consensual character and facilitates the more rapid decision-making process by a representative and relevant majority. Of course, the economic, social, cultural heterogeneity specific to EU and accented by the successive enlargement waves should have constituted a barrier against the extension of the qualified majority voting, but reality has showed that this procedure is very efficient and necessary for the more rapid progress of integration and for ensuring the decision-making promptness in the extremely important fields of the sectorial policy.

J. Peterson makes a clear distinction between the types of decisions in the analysis of the multilevel or multilayer governance, between the constitutional and strategic ones on one hand and the current ones on the other hand, the first ones implying more the European Council and the last ones more the Council of Minister and the European Parliament. Doctrinaire approaches of the type of neo-functional and inter-governmental are useful for the explanation of the historical major decisions within EU, but less for the decisions related to the common policies elaboration process.

c) Dynamic dispersion of authority, the decision-making competencies are divided between actors located at various territorial levels (Marks, Hooghe). Edgar Grande states that multilevel governance would have a dynamic character due to the fact that the functions and competencies at different levels were not and probably will not be precisely fixed, and Beate Kohler-Koch (1999) does not see the European governance as a stable structure, but a structure variable in time and depending on the implied policy fields. As the interactions between the different levels of governance (multilevel) are not disciplined by constitutional rules, a strong competition would exist for competencies, which confers dynamism to governance (Grande, Maynitz, Peters, Pierre).

The dynamic dispersion of authority has been analyzed in correlation with the jurisdictional arrangements. Gary Marks and Liesbet Hooghe, investigating the jurisdictional allocation of authority (Hooghe, Marks, 2001), have focused on the number of jurisdictions upon the natural persons on a certain territory, the fiscal power, the official and non-official power relations between jurisdictions reaching at the conclusion that the number of jurisdictions is not relevant as concerns the allocation of competencies in the field of policies. Authors as Marks, Hooghe, Schmitter, Lindberg, Scheingold, Deutsch, and Polack have analyzed the allocation of authority in the policies field and especially the role of the Community authorities and that of the national authorities.

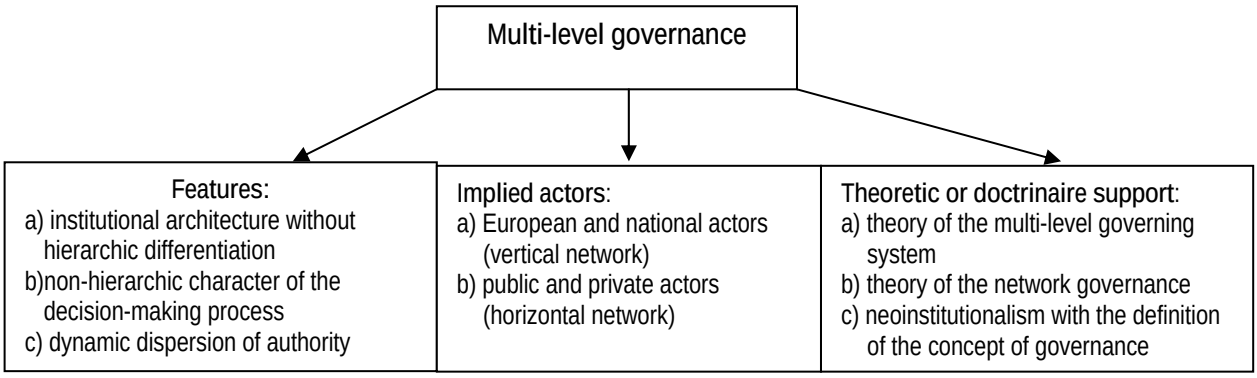
In all the multilevel governing systems the power exercised upon the resources, especially fiscal, is extremely important and the precise measuring of the fiscal role of a jurisdiction may be done through the intermediary of the incomes and fiscal expenses level (before and after the transfers), by the jurisdiction influence upon the definition of the taxation base or tax imposition by the compulsory or discretionary, conditioned or unconditioned character of the transfers to and from other jurisdictions.

The decision-making complexity and nature in a multilevel governance must be analyzed and also the interaction or reports between the different jurisdictions, which may be hierarchical of mutual or asymmetric dependence, of relative independence, with official or non-official character. An analyst of federalism like William Riker has correctly enough noticed that in a multilevel governance of the federal type the centralized system of the political parties influence the decision-making process at different levels and confers to governance a more centralized character than it officially appears. In the EU case the political parties are more influenced at the national level than at the supranational level, the political groups from the European Parliament exercise a certain political guardianships upon the parties from the Member countries, but the system is not comparable to that of USA or Canada.

In a multilevel governance of the federal or Community type the dispersion of authority over multiple jurisdictions is more efficient and normatively superior to the monopoly of the centralized national state. The type of multilevel governance in which the dispersion of authority is limited to a certain number of not overlapped jurisdictions for a limited number of levels, jurisdictions, which seem to be permanent or stable and with multiple tasks that is specific to the federal states as well as to the European Community. The Community governance is a multilevel system with distinct particularities in which the authority in the specific decision and/or policy field is dispersed or divided on the three territorial levels: Community, national and sub national but also on a large spectrum of actors (public and private).

In the conditions of the European integration and regionalization there appears the question of the national state role (authority) at the decision-making process, especially in the field of common economic and social policies. A certain transfer of the authority of this one at supranational (Community) and sub national level is obvious, but the role of the national governmental authorities is maintained very important within the European Community through the inter-governmental represented by the European Council and the Council of Ministers. Although major phenomena, like globalization and regional integration, diminish

the authority of the national state, this one continues to play a key role in the national, Community and global governance, and its dissolution on the European continent is difficult to anticipate in a predictable future. Robert Keohane and Joseph Nye did not see the replacement of the national state as an essential instrument of the national, Community and global governance but only it's accompanying by other significant actors of this governance.



Source: Realized by the author according to *The EU Governance*, Prisecaru, P., Editura Economică, Bucureşti, 2005.

Figure 1

3. Main actors and networks of the multilevel governance

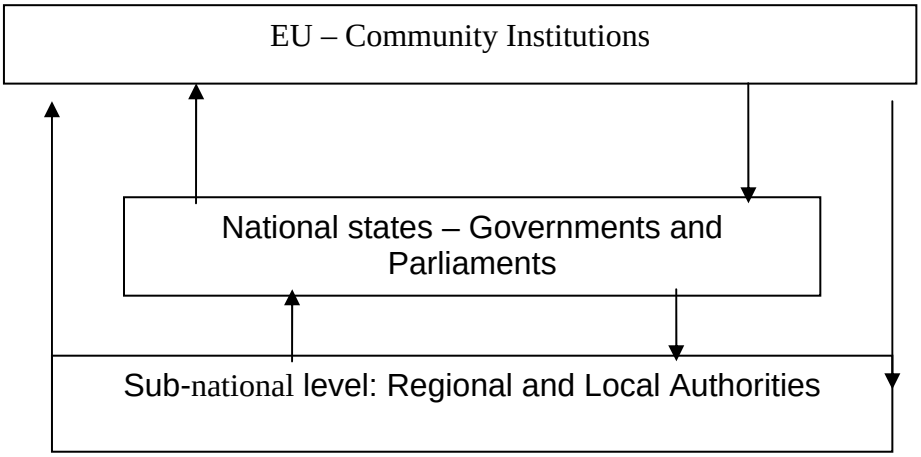
Making evident the supranational character of the Community governance raises the question of distributing the power between the main actors at the vertical and horizontal level. In the first case the Community level cannot function without this repartition of power to other levels. The distribution of power between EU and the national governments is visible within the European Council, the Council of Ministers and lots of intergovernmental committees within the three pillars. Moreover, EU is based at a great extent on the national governments (ministries and agencies) in order to transpose and implement the Community policies and law (or the so-called Community acquis). But the sub national level also intervenes in this complex process, which solidly grounds the theory of the multilevel governance (Prisecaru, 2005). To what extent the sub national level is implied in the conception and implementation of the structural policy, for instance, remains to be analyzed, although some authors have serious reserves in this case.

At the horizontal level, the distribution of power does not imply only the institutions but also various political forces, like the interests groups and the civil society, organized at the Community level. The political parties, at the national as well as Community level, and the civil society have intensely dealt with constitutional questions, field in which mass-media has many times resorted to rude manipulations and mystifications. In the decision-making questions, concerning regulatory aspects of the markets integration, the interests groups have very well organized at the Community level and promoted their interests together with the national governments within the debates organized by the Community institutions. If the Commission has promoted the general interests of the Community, the Council and Parliament have supported specific and many times contradictory interests. That is why we may state that the policies elaboration process is influenced by networks oriented to policies or problems, which have shown a non-official or institutionalized existence.

There are certain dimensions of the Community governance which any serious theory or doctrine must reveal, like its political and legal character, the different types of changes specific to this system, the framing of the governance structures at the level of the policies within some wider systematic structure, the normative dimension of governance (Bulmer, 2004). All these dimensions are approached by neo-institutional.

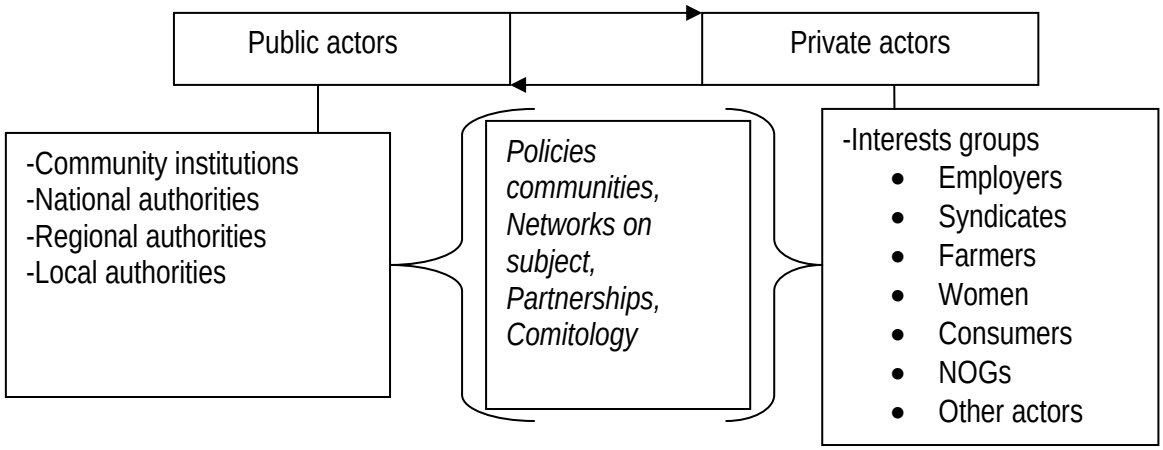
There is a *multitude of actors* within the European governance (political, economic, social, cultural, institutional and extra institutional) and there are two main networks: a

territorial/vertical one implying the national and supranational public institutions and a functional/horizontal one implying the public and private actors, presented in the following images.



Source: Prisecaru P., EU Governance, 2005.

Figure 2. *EU multi-level governing system*
A-territorial/vertical network



Source: Prisecaru P., *EU Governance,* 2005.

Figure 3. *EU multilevel governing system.*
B- functional/horizontal network

The main public actors with an important role in the elaboration of the Community policies and in the refiguration of the national policies are: the ministries, departments and governmental agencies from each state, the Council of Ministers (of EU) and within this one COREPER, the General Directorates of the European Commission and the cabinets of the commissars, the numerous committees, subcommittees and working groups associated to the Commission, the national and regional parliaments, the European Parliament, the European Council, the Economic and Social Committee, the Regions Committee, other European organizations. This extremely complex institutional framework confers advantages as well as disadvantages to the promotion of the private actors' interests (interests groups).

As for the main private actors the studies elaborated by authors like Schmitter, Streeck, Greenwood, Mazey, Richardson, Schendelen, Eising, Kohler-Koch, Georges, Grande, Wallace, Young, Aspinwall, Peschke have reached to the conclusion that the institutional architecture of the Community policies elaboration modulates the creation and articulation of the private interests. According to the neo-functional theory, the establishment of the Community decision level and the transfers of competencies and resources from the national

to the Community level has impelled the creation of interests groups at the European level (Euro groups), and the European Commission has actively supported this process, granting them a privileged access at the Community level. Together with the single market schedule the creation of these groups has been also intensified. The empirical analyses have indicated that as to the interests groups at the national level these ones have certain organizational particularities which concern the capacity of member, their resources, their internal structures, their organization fields.

As concerns the affiliation to Euro groups we must mention that they usually contain organizations, over 2/3 contain groups' federations and only 1/3 contain natural and legal persons. The main organization (top) at the European level are those of the farmers – COPA (Committee of Agricultural Organizations), workers – ETUC (European Trade Union Confederation), businessmen – UNICE (Union of Industrial and Employers' Confederations of Europe), consumers – BEUC (The European Consumers' Organization), being actually federations of the interests groups.

Beside the top organizations grouping large professional categories there are also sectorial organizations constituted from the members of the same sector (natural and/or legal persons), like the chemical producers, vehicle producers. As for the organizational fields there may be noticed the strictly specialized character of affiliation and activities. In the field of science and technology there is a great number of strictly specialized interests Euro groups, organized based on various criteria, like the type of the research (fundamental, applicative, industrial), the legal statute of the organization (universities, academies) or academic disciplines.

Due to the fact that nevertheless most of the Euro groups have been created based on the national organizations and because of their diversity there have been emphasized the diversity and fragmentation at the European level. Due to this phenomenon within the multi-level system architecture, the aggregation of the interests at the European level is weak, not following a functional logic but a territorial one, and the result is a system in which coexist Euro organizations of the umbrella type of some powerful national organizations which have general interests with strictly specialized Euro organizations of some national interests groups.

Certain specific business interests have been promoted by non-official organizations, trans sectorial, influent enough, of the type of the small clubs, round tables or ad-hoc coalitions. Among them we may mention the Manufacturers Round Table (1983), the EU Committee of the American Chamber of Commerce (1985), the European Round Table of Industrialists based on the Information Technology (1981), the Transatlantic Business Dialogue (1995). These non-official groups have been extremely pretentious in the selection of the members and centered on specific objectives, needed no transfer of resources and organizational powers and succeeded to efficiently promote the group interests at the Community level.

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ANALYSIS OF ABSORPTION CAPACITY OF THE EUROPEAN FUNDS IN ROMANIA

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Abstract. *The wide range of issues that project implementation raises, considering also the diversity of the financing fields (research – development, professional training, agriculture, informatics, forestry, manufacturing industry, constructions, services, etc.) most inevitably demands a sustained effort of monitoring and correction of inaccuracies, of the challenges that the free market poises but also of the skills and knowledge shortage which the institutions in Romania have to face in our days. This research work displays different problems encountered in the process of attracting European funds while verifying the existence of the link between the value of the projects submitted and the total implemented projects.*

Keywords*:* absorption capacity; co-financing; convergence; irredeemable financing; regression function**.**

JEL Codes: F36, O19.
REL Codes: 13G, 18F, 20F.

1. Introduction

The economic decline started in 2008, and its main effect was the acute deterioration of the business climate. If in 2008, the European Union's, GDP growth registered already a low value (0.8%) in 2009 was registered an average decrease of 4%. In the Baltic states the recession has been relatively strong, registering negative rates (between 14% and 18%), Poland is the only country which enjoyed economic growth in 2009 (1.2%).

The total of investments decreased by approximately 15% in 2009 in comparison with the previous year and the consumption decreased around 3%. Exports of goods and services had dramatically fall by almost 20%, and FDI (foreign direct investments) declined in several countries in Central and Eastern Europe. Public expenses increased playing a countercyclical role. Primarily, this increase was due to the protection provided by the national system of social support and incentive plans adopted by many member states within the European economic recovery plan.

Given the precarious economic situation, most countries have turned their attention to attracting irredeemable funds, especially since the structural assistance allocated to the Member States from the EU27 for 2007-2013 is of 308 billion euro, which represents 35% of the EU budget of an 862 billion euro value (Florescu, 2008, pp. 263-268), two times more that in the first exercise the period 1994 – 1999, when they allocated 155.1 billion euro, and 1.7 times more that in the second programming period, 2000-2006, when they allocated 182.45 billion euro. Of the 308 billion euro, Romania being able to benefit from non-redeemable funds in amount of Euro 32 billions for the period 2007-2013.

2. Cureent status of the process of absorption of structural funds

According to a communique of the Ministry of Finance at September 30, 2010 was submitted 21,902 projects with a value of 190,775,310,816 lei, 5,523 of these ones being approved for a total aggregate value of over 49,445,748,670 lei, contracted a number of 3,915 projects worth 41,448,909,269 lei and payments amounting to only 5,127,274,579 lei. Regarding the situation in each Operational Program the status is as follows:

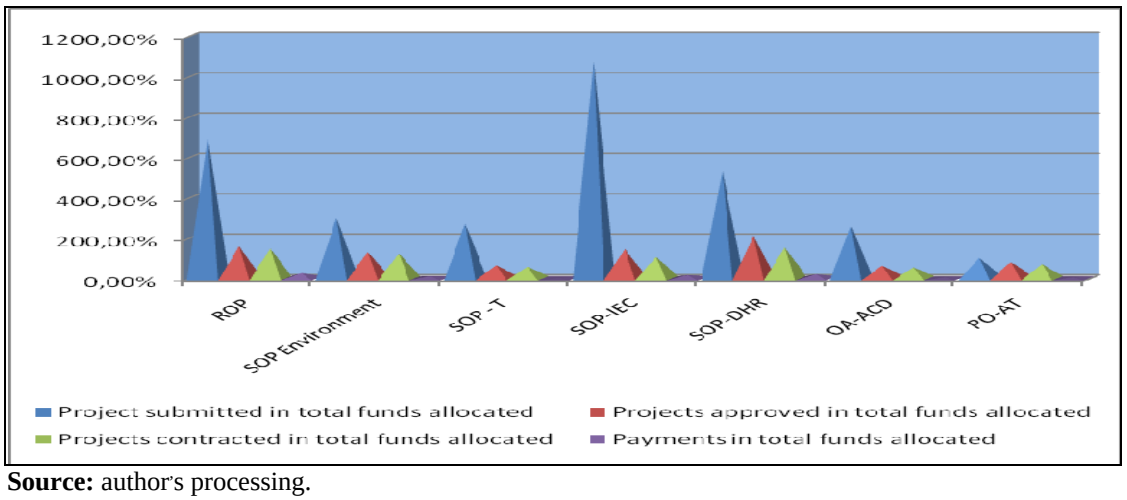
Table 1

Absorption capacity of each Operational Program at September 30, 2010

Operational programs	Total funds allocation 2007 - 2010 lei	Projects submitted		Projects approved		Projects contractet		Total payments at June 30, 2010 lei
		Number of projects	Total allocations lei	Number of projects	Total allocations lei	Number of projects	Total allocations lei	
Regional Operational Program	7,194,887,975	6,960	50,693,421,253	1,039	11,407,389,679	797	10,528,182,450	1,838,812,450
Environment Regional Operational Program	8,348,260,504	263	25,074,787,011	152	10,859,978,653	128	10,183,653,074	992,245,922
Transports Regional Operational Program	8,626,620,068	58	23,312,917,138	27	5,434,620,731	24	4,850,544,786	159,662,008
Growth of the Economic Competitiveness Sector Operational Program	5,148,640,145	6,926	55,418,504,849	1,952	7,438,088,881	1,378	5,478,617,635	814,195,846
Human Resourses Development Sector Operational Program	6,496,119,903	6,639	34,451,220,320	2,037	13,693,612,110	1,317	9,885,081,531	1,271,829,259
Growth of the Administrative Capacity Sector Operational Program	553,966,176	987	1,478,253,594	261	338,077,129	223	289,068,978	30,047,634
Technical Assistance Operational Program	343,552,891	69	346,206,651	55	273,981,487	48	233,760,815	20,481,460

Source: Authority for Coordination of Structural Instruments.

The data presented in the table above reveal that the projects submitted reached a high number but on the other hand the number of approved projects and contracts is very low. Overall the absorption rate is only 13.48% within the Operational Programme, the Regional Operational Programme is the champion with 24.43% and on the opposite pole we have the Transports Regional Operational Program with 1.85%.



Source: author's processing.

Figure 1. *Statement of projects submitted, approved, contracted and paid in total funding allocated at September 30, 2010*

As a result, in order to accomplish a higher input rate in 2010, we need to shorten the deadlines and to simplify the current procedures, including the modification of the public procurement legislation. In the context of the international crisis, a good manner of re-launching would be to make better and faster use of the EU funds, by enhancing the allocated budgets, planned to extend by the year 2013 (Huba, Ştefănescu, 2008, pp. 376-383).

3. Analysis between the total value of submitted projects and the total value of implemented projects

Given the small proportion of payments in the total projects submitted I proposed using the method of simple regression analysis for the verification of the existence of the link between the two indicators, in the period January 2009-September 2010. Knowing that the regression function means the mathematical relation existing between two independent variables showing, also indicates, how the resultative parameter y (total value of projects implemented) is modified only after the modification of the values of the independent parameter x (total value of projects submitted), other factors, that might influence the phenomenon are considered having a constant action (Florescu, 2010, pp. 266- 273).

Table 2

The value of projects submitted and approved in the period January 2009-September 2010

Months	Total projects submitted (lei)	Total payments (lei)	Months	Total projects submitted (lei)	Total payments (lei)
January/09	713,458,156	6,211,132	December/09	5,747,533,926	170,899,756
February/09	2,579,436,372	37,973,624	January/10	2,976,259,769	154,974,323
March/09	1,432,932,467	151,575,013	February/10	1,103,327,166	177,786,832
April/09	2,237,747,656	36,739,638	March/10	3,062,459,365	152,594,203
May/09	2,738,146,594	132,686,707	April/10	10,794,415,592	209,239,871
June/09	3,843,350,210	95,299,405	May/10	14,218,057,049	296,965,526
July/09	5,220,708,296	105,988,610	June/10	7,375,968,219	245,510,596
August/09	2,902,432,571	370,800,835	July/10	6,769,536,447	288,790,786
September/09	19,489,146,310	186,211,810	August/10	5,692,511,909	613,248,531
October/09	17,936,196,301	126,092,119	September/10	11,579,512,773	476,871,384
November/09	3,872,669,447	345,427,568	Total	132,285,806,595	4,381,888,269

Source: Authority for Coordination of Structural Instruments.

Thereby, using the data from Table 2, we obtained following data:

Regression Statistics	
Multiple R	0.231233382
R Square	0.053468877
Adjusted R Square	0.003651449
Standard Error	0.148728709
Observations	21

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.37416E+16	2.37416E+16	1.073297	0.313208
Residual	19	4.20284E+17	2.21202E+16		
Total	20	4.44026E+17			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	168812037.3	50327602.55	3.354263442	0.003332	63475155	274148920
X Variable	0.006325966	0.006106143	1.036000301	0.313208	-0.0064543	0.01910627

Source: author's processing.

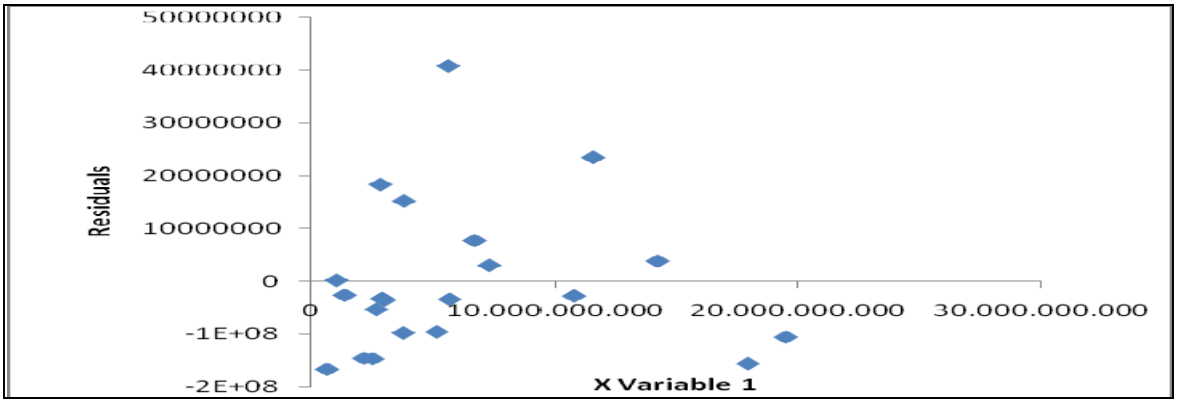
Following the analysis of these data we found out that:

- Multiple R indicates a positive but very weak link;
- R Squared indicator shows a reduced though strong extent in which the value of payments is explained by the value of submitted projects. Only 5.35% of the dependent variable is explained by the development of independent variable;
- From the above information we can also identify the coefficient values α_0 and α_1, the regression equation can be rewritten:

$$\text{Payments} = 168,12,037.3 + 0.00633\,\text{submitted projects} + \varepsilon$$

- Given the probability of the associated p-value = 0.0033 which is less than 0.05 we reject with a probability of 95%, the null hypothesis stating that the regression parameter is equal with 0;
- Significance F is higher than 5%, meaning that the regression model is not valid, the influence of explanatory variable upon the explained variable is insignificant;
- The F test (F = 1.073297), shows a small positive value, which invalidates the linear regression model describing the relationship between the payment projects and the submitted projects. Therefore we can consider that there are other factors influencing the dependence relationship between the two variables.

Scattering diagram



Source: author's processing.

Figure 2

In an attempt to increase the extent to which the independent variable is explained based on the independent variable, we performed a logarithm transformation.

Its results are presented below:

Regression Statistics	
Multiple R	0.554842662
R Square	0.30785038
Adjusted R Square	0.271421452
Standard Error	0.865355502
Observations	21

ANOVA

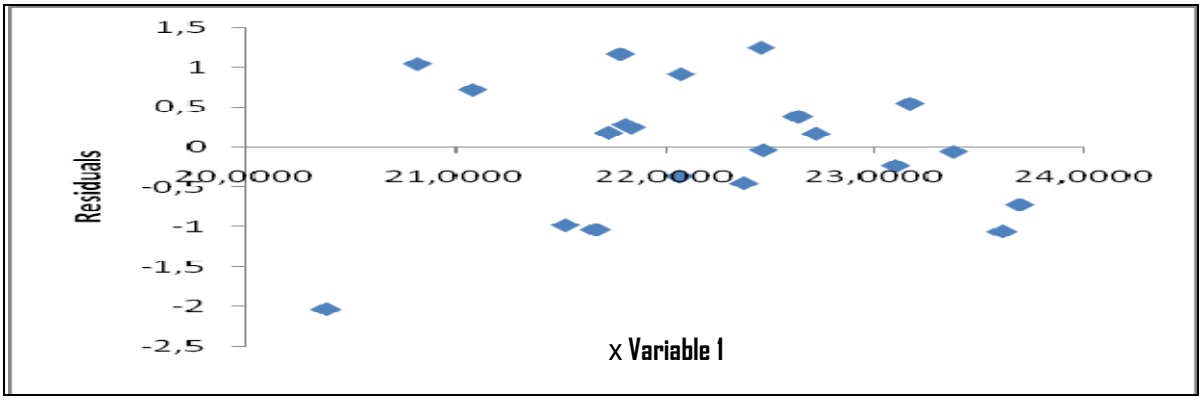
	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	6.328233	6.328233	8.450712	0.009038
Residual	19	14.22796	0.74884		
Total	20	20.5562			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	4.7980012	4.82903	0.993575	0.332916	-5.30927	14.90528
X Variable	0.631541296	0.217248	2.907011	0.009038	0.176837	1.086246

Source: author's processing.

After transformation we increased the R^2 value from 0.00329 to 0.01245, which shows that approximately 5% from the dependent variable (implemented projects), is explained through the development of the independent variable (submitted projects). However, the percentage remains small.

In addition, the modest value of the F test determined the invalidation of the model.



Source: author's processing.

Figure 3. *Scattering diagram after the logarithmic transformation*

4. Conclusion

In conclusion, the invalidation of the model can be called upon the low series of used data, but my opinion is that an importance should be given to the problems the potential beneficiaries of these grants have to face. There are lots of problems, however, lately the biggest one they face is the co-financing matter. The beneficiaries need the co- financing for: part of it's contribution, to start work and paying contractors and for the prioritize coverage ineligible.

The access to Social and Cohesion Funds offers Romania a possibility to develop the regions which are lagging behind, to modernize transport and environment infrastructure, to support rural development, to create new employment opportunities, to sustain social policies which will lead to the growth of the standard of life.

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THEORETICAL CONSIDERATIONS REGARDING THE CONTRIBUTATION OF HUMAN CAPITAL TO ECONOMIC GROWTH

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Abstract. *The scientific approach highlights the contribution of human capital in achieving economic growth. Theoretical considerations are presented first regarding theories and neoclassical growth models, and then some contributions of human capital and education to economic growth. In the present context it was considered necessary to study the influence of human capital on economic growth as the link between the two is obvious: human capital through education contributes to society and the quality of education depends on the level of development.*

Also, the authors present some empirical studies on the effects (results) of education on economic growth.

Keywords: economic growth; human capital; education; investing in education.

JEL Codes: I21, O40.
REL Codes: 8 E, 4B.

1. Introduction

In the research that was conducted, we assumed that the role of human capital in achieving development and economic growth is essential. In other words, education results in increased individual choice and creates growth in the medium and long term.

Moreover, the accumulation of human capital offers benefits to individuals as well as companies and society. Some of these benefits take the form of higher financial incomes that lead to higher productivity and thus economic growth.

Investing in human capital is an important determinant of the earning capacity of individuals and their employment prospects and plays a major role in determining the level and distribution of income in society.

However, investment in human capital is closely linked with the other benefits that arise as a result of increasing knowledge, thus increasing the education level of individuals. Education can bring people not only the best technological knowledge, but by educating potential innovators, it leads to an advance of knowledge and also contributes to economic growth.

Increasing the level of education is also a reason for gaining a greater stability on the labor market helping to reduce unemployment.

The purpose of this research is to highlight the link between economic growth and the contribution of human capital in achieving it, focusing on the fact that the individuals' education is one of the main factors of development and economic growth.

The main characteristic of economic development is increasing the role of human capital as a key element of economic growth. That is why the two components constitute the main objective of the present research.

2. Theories and neoclassical models of economic growth

During the evolution of society it has been discovered that there is a consensus on the need for economic growth. That is why growth theories and models show different ways in which present activities influence future activities and identify sources that can lead to continuous growth. These theories have evolved in time, depending on the dynamics of economic reality and the evolution of economic analysis tools.

The neoclassical growth model explains how capital accumulation and technological changes influence the economy.

In the ‘60s, growth theories were based mainly on the neoclassical model developed by Ramsey (1928), Solow (1956), Swan (1956), Cass (1965) and Koopmans (1965). An important feature of the model is the property of convergence: the lower the initial level of GDP per capita, the higher the expected rate of growth. This property derived from the neoclassical models of economies of scale of the capital. Economies that are endowed with less capital per worker (compared with the long-term capital per worker), tend to have higher rates of growth and higher efficiency. This convergence is conditional as the level of steady-state or long-term capital and output per employee depend, in the neoclassical model, on the inclination for savings, the rate of population growth and the output function.

Recent extensions of the model suggest including the differences between countries in terms of government policies on government consumption, protection of property rights and distortion of national and international markets (Barro, 1997).

Another approach to the neoclassical model is that in the absence of ongoing improvements in technology, at a certain time the end of economic growth was predicted. This approach, which vaguely resembles the theory of Malthus (1798) and Ricardo (1817), is based on the assumption that decreasing efficiency applies to the broad concept of capital. Empirical long-term data show that growth rates persist more than 100 years without showing declining trends.

Theorists of the economic growth in the '50s and '60s hide this deficiency (assuming that technological progress is exogenous) until the emergence of new economic growth models with endogenous technological progress. Technological progress involves the creation of new ideas that are partially non-rival and therefore take the form of public goods. Economists Arrow (1962) and Sheshinski (1967) construct a model where the ideas and discoveries of every person are immediately disseminated throughout the economy, which is quite feasible because ideas are non-rival. Later, Romer (1986) showed that a competitive framework can lead to a steady rate of technological progress, but the rate increase will not be optimal. Moreover, the competitive framework changes if we take into consideration that progress partially depends on the research and development efforts and that innovation is disseminated gradually and unevenly. In this case, a decentralized theory of technological progress requires major changes of the competition framework to incorporate elements of imperfect competition. The new wave of research (Romer, 1986, Lucas, 1988, Rebelo, 1991) built on the results of Arrow (1962), Sheshinski (1967) and Uzawa (1965) has not really introduced a theory of changing technological models. In these models, growth could evolve indefinitely, due to the fact that the efficiency of investments, including in the human capital, do not necessarily diminish as economies develop.

Starting with 1990, on the background of a rising interest for economic growth, both the phenomenon and the theory, growth models appear in which the technological progress is endogenous, as a result of economic activity.

Romer was considered the founder and was then followed by Helpman (1992), Renelt (1991), Shaw (1992), Frederick van der Ploeg Tang (1992), etc.

Two further issues have motivated the use of aggregate data to estimate the effects of education on the growth rate. Firstly, the relationship between education and growth at the aggregate data level can provide a better understanding of endogenous growth theories and as appropriate, may confirm or rule out some theories. Secondly, the macroeconomic operation captures external effects of education that the microeconomic literature cannot include.

According to Aghion and Howitt (1998) in endogenous growth models, the role of human capital can be divided into two main categories:

a) in the first category, the concept of capital includes human capital and economic growth is achieved thanks to the accumulation of human capital in time, as in models of Uzawa (1965) and Lucas (1988).

b) in the second category of models, the increase is due to the existing stock of human capital that generates innovations, present in the model of Romer (1990), that of Nelson and Phelps (1966), Rustichini and Schmitz's model (1991), Acemoglu and Zilibotii (2000).

However, the implications of the different role of human capital in economic growth models have been studied by Romer (1990). He regressed the average annual output growth rate per capita between 1960 - 1985 on the 1960 literacy rate and notices changes during 1960 - 1980, keeping constant the initial level of the GDP per capita and the level of investment in it. His findings show that the initial level of the literacy rate, not its changes, have led to an increase in production.

Other specialists (Benhabib, Spiegel, 1994) believe that, if introduced into an equation meant to raise the GDP, the changes to the schooling rate would be very small.

Nowadays, economists consider that there are several mechanisms by which growth can be influenced. One of these is the education of human capital (Milles, 2004). It is considered that higher education contributes to technological development and individuals are investing more in education to adjust to progress and development. The added value of the model derives from the fact that the reward for education is different depending on the country/national economy, level of development.

Other authors have similar considerations in their studies (Hanushek, Wößmann, 2008), stating that the field literature indicates at least three mechanisms through which education can contribute to economic growth.

The first is that education increases labor productivity and consequently the level of output (as in the neoclassical growth theories of Mankiw, Romer and Weil).

Secondly, education can increase an economy's innovation capacity and knowledge of new technologies, products and processes, and promote growth, as determined by the endogenous growth models of Lucas's (1988), Romer (1990) Aghion and Howitt (1998).

And thirdly, education can facilitate the process of dissemination and transfer of knowledge necessary to understand and process new information and successfully implement new technologies that lead to economic growth.

3. The contribution of human capital and education to economic growth

Birdsall, Ross and Sabot (1997) study the contribution of human capital and the effects of education on growth in East Asia and Latin America. They argue that the rewards to education are higher in the countries in East Asia compared to Latin American countries due to different levels of economic development and macroeconomic policies implemented.

Barro and Sala-i-Martin (1995) conducted a regression for a group of countries and reach a similar conclusion: human capital contributes relatively little to economic growth in developing countries, compared to those where the growth rate is high.

Bjorklund and Lind (2005) use data for the GDP and education for the period 1960-1990 for 83 developed and developing countries.

The conclusion they reach is that for an average country, an additional year of education is associated with an increase of approximately 29% of GDP per capita, and for 23 OECD countries, the relationship is significant and positive, although lower (15%).

Besides education, many economists use the so-called "Barro-type regressions" to take into account other factors (Bjoklund, Lindh, 2005).

Barro (1997) estimated growth for approximately 100 countries during 1965-1985 as a function of changes in the education level. The model includes a number of control variables such as initial level of education in the early period, life expectancy, the interaction between GDP and human capital, political instability and public spending on education. However, from a statistical point of view there are no significant changes in the effects of education on economic growth.

At a macroeconomic level, many authors including Theodore Schultz and Denison have studied the contribution of education to economic growth.

From a theoretical point of view, the two alternatives described by the two leading economists lead to relatively similar results in Table 1.

Table 1

Estimating the contribution of education to economic growth

COUNTRY	The contribution of education to economic growth	
	Schultz	Denison
USA	17.9	15.0
UK	8.4	12.0
Norway	6.3	7.0
The Netherlands	4.0	5.0
Hawaii	12.0	16.1
Chile	11.4	4.5
Argentina	12.7	16.5
Columbia	24.5	4.1
Venezuela	14.8	2.4
The Filipines	10.8	10.5

Source: G. Psacharopoules, *Returns to education. An updated international comparison*, Int. King, (ed.), *Education and Income*, World Bank *Staff Working Paper no. 402*, the World Bank, Washington D.C., 1993, pp. 119.

Estimates of both are relevant for developed countries, as for developing countries this is true in a small proportion only.

The two authors (Schultz and Denison) were not the only ones concerned with the relationship between education and economic growth.

However, a reflection of this is included in the Beckerian model of Education (1964) as the main component of investment in the human capital, underlining its economic effects. Based on the estimated costs and profits of education, the author found correlations between the level of education, earnings or obtaining a job. Through this analysis Becker found that the income of educated and trained people grows faster than that of less educated and trained individuals and developed the concept of age-earnings curves and age-wealth curves, adding that their shape is determined by one's individual investment in education.

In fact, Becker started from a model whose assumption was that education increases the productivity of those who possess it, and thus developing his theory of human capital.

According to the model specified by Nelson and Phelps (1966), education leads to a greater dissemination of technology, and therefore individuals must become more educated to adjust. The added value of the model suggests that the benefits of education vary for different economies, depending on their level.

More and more the contribution of education to economic growth is being recognized and research shows that investment in this area produces recovery rates at both individual and social level comparable to the investment in physical capital.

Consequently, one of the most important aspects of the individuals' education is the impact that it has on human capital and implicitly on economic growth (Gherghina, 2009).

In the process of economic growth, the human factor increases the volume of work at macroeconomic labor, and of its quality, expressed synthetically by labour productivity. From a qualitative point of view, the human factor has two effects in the process of economic growth: raining its own quality (dependent on the qualification and motivation for work) and work productivity (influenced by the technical endowment of work). For example, studies realized in 2004 in Great Britain have shown that training has a positive effect on productivity. So, an increase of 5% of training is associated with an increase of 4% of productivity and a salary increase of 1,6%.

Specialists in the economy as Hanushek and Kimko (2000) have analyzed the effects of education on economic growth, confirming that the effects of the quality of education are much important tan its quantity. The authors estimate economic growth in the period 1960–1990 as a function of the average length of education, concluding that results in mathematic tests and science for 31 rich and poor countries decreases from 0.55 to 0.10 percentage points when the results in tests are used as control variable. Results in tests are statistically significant, meanwhile education on the overall is not, taking into account that both variables were used simultaneously. The results of the tests are interpreted as a increase in the quality of labor.

For example, the general form of the Macro Mincer equation is:

$$\Delta \ln G_j^g = B_0 + B_{1J} \times \Delta S_j + \Delta \varepsilon_j$$

where:

$\Delta \lg G_j^g$ = the geometrical average of incomes

ΔS_j = average education

And, the general form of an equation used for economic growth is:

$$\Delta Yj = \beta_0 + \beta_1 \times Y_{j,t-1} + \beta_2 \times S_{j,t-1} + \beta_3 \times Z_{j,t-1} + \varepsilon j$$

where:

ΔY_j is the modification of the GDP per capita from year t - 1 in the year t, expressed in logarithmic form

$S_{j,t-1}$ = the average of schooling years of the population in the initial year

$Y_{j,t-1}$ = the logarithm of initial GDP per capita

$Z_{j,t-1}$ includes variables as inflation, modifications in the length of average education, capital, etc.

One of the differences that growth equations have in comparison with the ones that are strictly based on the Mincerian model is that those of economic growth use the modifications of the logarithm of GDP as independent variable, in comparison with the modifications in the logarithm of incomes. If income has a normal distribution and varies constantly in time, and the percentage of work is constant in this result, the fact that the GDP is used instead of incomes for labor does not affect the logic of the regression. If the function of aggregated production would be a stable one of the type Cobb-Douglas, for example, than the share of work would be constant and would assure a correlation of the macro Mincer equations and the growth ones.

Albeit this, taking into consideration other type of the production function, there is no simple between the effects of schooling on individual incomes obtained by work and the effects of schooling on the GDP. Secondly, the empiric macro-literature omits in many cases the changes produced in the level of schooling and only includes the initial level of this. If it is included the modification in the level of education, its estimated impact would reflect the general effects of the equilibrium of education at country level. In the third place, because many part of the macro-literature is motivated by the study of the convergence problem,

researchers hold constant the initial level of GDP, that can also be a variable adequate to substitute the initial stock of capital in the production function Cobb-Douglas.
In this sense, the Mincerian model shows that the changes in the average m=level of education are the determinant of income increases. Albeit this, the specialized macroeconomic literature states that growth is a function of the initial level of education.

4. Conclusions

One of the most important aspects of individuals' education is the impact that it has on human capital and economic growth. The contribution of education to economic growth is widely recognized and research shows that investment in this area produces rates of return both individually and socially, similar with those produced by investment in physical capital.

The economic research regarding education underlines the relation that exists between investment in human capital and economic growth. This relation is a twofold one: on one hand, investment in education influences economic growth by their amount, and on the other hand, economic growth is influenced by the quality of the investments made in education, think that is being reflected in their economic efficiency of these.

Consequently, in this century, is necessary to rethink the relation between human capital and economic growth, because reality is obvious: the role of education is increasing in what concerns economic development, its acceleration, on one hand, and on the other hand, the quality of education depends on the level of development of the country.

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THE ROLE OF PUBLIC FINANCIAL MANAGEMENT IN LOCAL PUBLIC FINANCE

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Abstract. *In the last years we witnessed the continuous growth of local public resources, while public authorities from territorial-administrative units diversified their structures in order to achieve all the tasks that have been transferred. As a result, the position of subordinated public institutions was strengthened by increasing their number and volume of resources developed by them. In this paper we propose to highlight the features of the financial management of public funds by public institutions of local subordination in the context of decentralization in Romania.*

Keywords: local public finances; public institutions; public financial management.

JEL Code: H72.
REL Code: 13K.

1. Introduction

In the recent years, local public finances have taken a greater importance which imposes the necessity to proceed to a more detailed analysis regarding the management of funds. The increase of public resources managed by the local budgets has led to a diversification of the organizational structures of municipalities and county councils, including the increasing number of public institutions with local subordination.

As local organizational structures become more complex on vertical, financial mechanisms used at the central level have been introduced locally. Thus, local governments and their institutions had to adapt and improve their own integrated financial mechanisms. Sound relations between the local authorities and subordinated institutions are the key of a successful financial management.

In this paper we propose to highlight the features of public financial management of local resources directly by the local authorities through the subordinate institutions. In the next section we will illustrate the management of the public funds in Ilfov County (conducted by Ilfov County Council and subordinated institutions).

This work was supported by CNCSIS–UEFISCSU, project number PNII–IDEI 1780/2008, herein called “Integrated financial management strategies within Romanian local public institutions in the context of an knowledge based economy”.

2. Financial mechanisms at local public administration

The importance of local government finance has increased steadily according to the decentralization. New responsibilities have been transferred from central to local governments. Financial component of this process is reflected in local income growth (especially disaggregated earnings and shares transferred from the local budget) to cover higher costs of the same local budgets.

Local financial resources are used to provide payments at the local authorities. During the process of decentralization there have been found various ways through which the new

responsibilities were transferred at local level. In some cases there were central public institutions that have been under the supervision of local authorities, even that they continue rendering services for which they were created (hospitals, records of persons, schools, etc..). In other cases, local authorities have had to supplement the supply of public services to match the new legal requirements (guaranteed minimum aid, the "Cake and milk"). In the latter case, local authorities could take over in its own structure the new activity or they could create a new independent institution.

These payments can be made directly by the local authority, through subordinated public institutions or through third parties. Apparently, the public interest intended proving funds for certain categories of expenditure, without stressing on payer entity. Deepening the analysis, there are differences in terms of financial arrangements involved in completing the actions. In this study we intend to highlight the features of the payments made by the public institutions subordinated to local authorities.

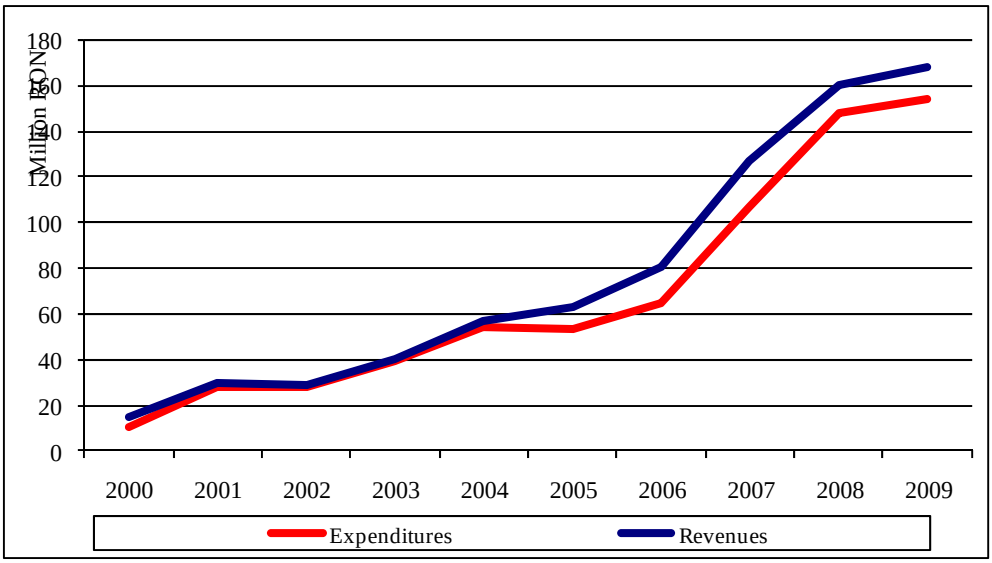
Direct payments made by local authority are assured from the local budget's available resources. Budgetary appropriations are made within the budget revenues collected without exceeding the limits set by the local budget. Making these payments requires the written consent of the mayor or president of county council for each payment separately. Outsourcing certain categories of payments to the subordinated institutions assure the reduction of the volume of documents managed by the local authority, requiring only the provision of funding based on the budget. These payments are consistent because it is primarily aimed at basic services provided by local authorities (which cannot be outsourced) and the investments for the creation and maintenance of public goods (schools, streets, parks, hospitals).

Payments can be made by the third party with the condition that the local authorities should be in a special relationship with them, most often hold shares or share in their heritage. Support the creation of joint inter-local government by law has led to a boost outsourcing payments, in particular those related to procurement in projects financed by the EU.

Payments by public institutions are the expression of outsourcing certain activities authorized by the local authority subordinate specialized institutions. Typology of public subordinated institutions was diversified due to the need for creating institutions to manage certain areas or taking subordinated institutions from ministries. Even though some public institutions were not included as a subordinated institution, legislation allowed them to receive funding from several sources, managing their local public funds similar to subordinate institutions. Outsourcing is a solution to do not crow the organizational authority by creating new divisions, departments, offices. Also, outsourcing allows the full delegation of powers to subordinate institution, which has the advantage to transfer all the bureaucratic activities of the authority to the subordinate institution. In addition to the benefits previous mentioned, it should also note a reduction of direct control exerted by the authority for each action. This is the main reason why the authorities have a certain reluctance to outsource.

3. Ilfov County's local public finances

Ilfov County budget, administered by the Ilfov County Council, has grown steadily over the past ten years. Budget revenues were 14.5 million RON in 2000, while in 2009 it rose to 168.2 million RON (1060% in nominal terms). Expenditures had a similar trend, increasing by 1465% expenditure (from 10.5 million RON in 2000 to 153.8 million RON in 2009). Revenue and expenditure statement of the Ilfov County during 2000-2009 is presented in the figure below.



Source: Ilfov County Council.

Figure 1. *Revenue and expenditure of the Ilfov County (2000-2009)*

The increased number of the public financial flows has been achieved against the backdrop of increasing public institutions that have received funding from the county budget. Public institutions that have received funding from Ilfov County budget during 2006-2009 are presented in the table below. Focused on the analysis horizon is the period elapsed since the implementation of the new budget classification from 1st of January 2006. Detailed data allow a comparison over time, but not with the financial data reported on the old classification.

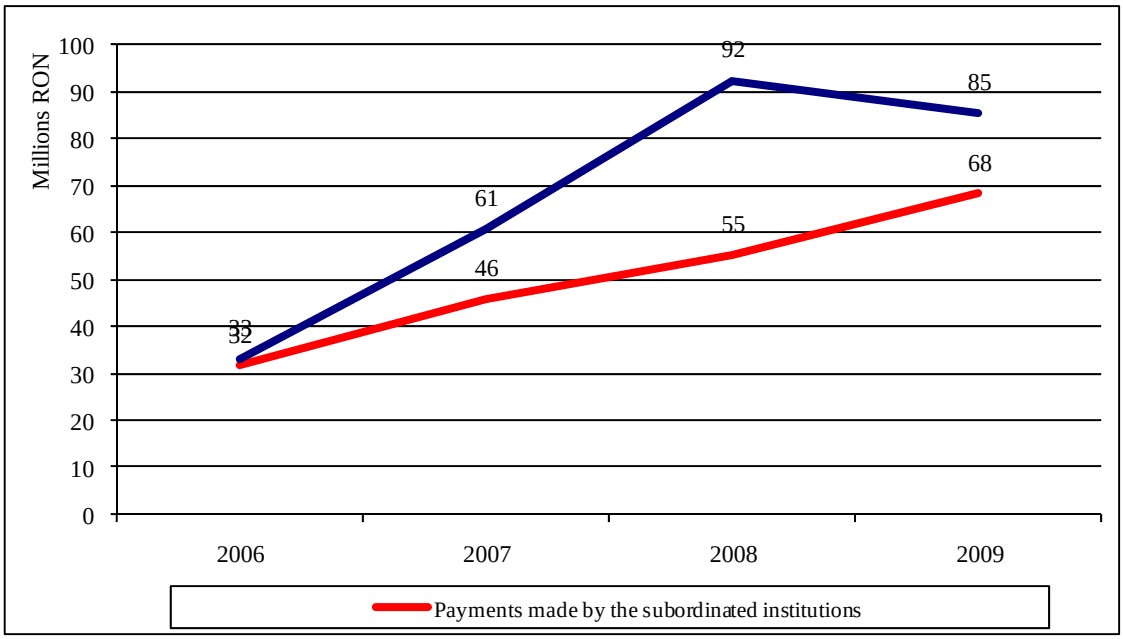
Table 1

Public institutions that have received funding from the budget of Ilfov County

Institutions	Budget chapter	2006	2007	2008	2009
Economy Mobilization Office and Territorial Preparing for Defense	Other public services	x	x	x	x
Public Service for ID cards	Other public services	x	x	x	x
Public service for Pest Control	Other public services	x	x	x	x
Cooperation Department	Other public services		x	x	x
Ilfov Transport Authority	Other public services			x	x
Ilfov Military Center	Defense, public order and safety	x	x	x	x
Ilfov Inspectorate for Emergency Situations	Defence, public order and safety	x	x	x	x
Special Education Units (Periş, Tâncăbeşti, Voluntari)	Education	x	x	x	x
Ilfov Resource Centerfor Educational Support	Education	x	x	x	x
Hospitals (countz hospital, Buftea, Periş, Bălăceanca)	Health	x	x	x	x
Ilfov Medical and Social Assistance Centre for Chronicle Patients Domenşti	Health	x	x	x	x
Ilfov County Center for the Preservation and Promotion of Traditional Culture	Culture	x	x	x	x
Ilfov Social Assistance and Child Protection Department	Social protection	x	x	x	x

Source: Council of Ilfov County.

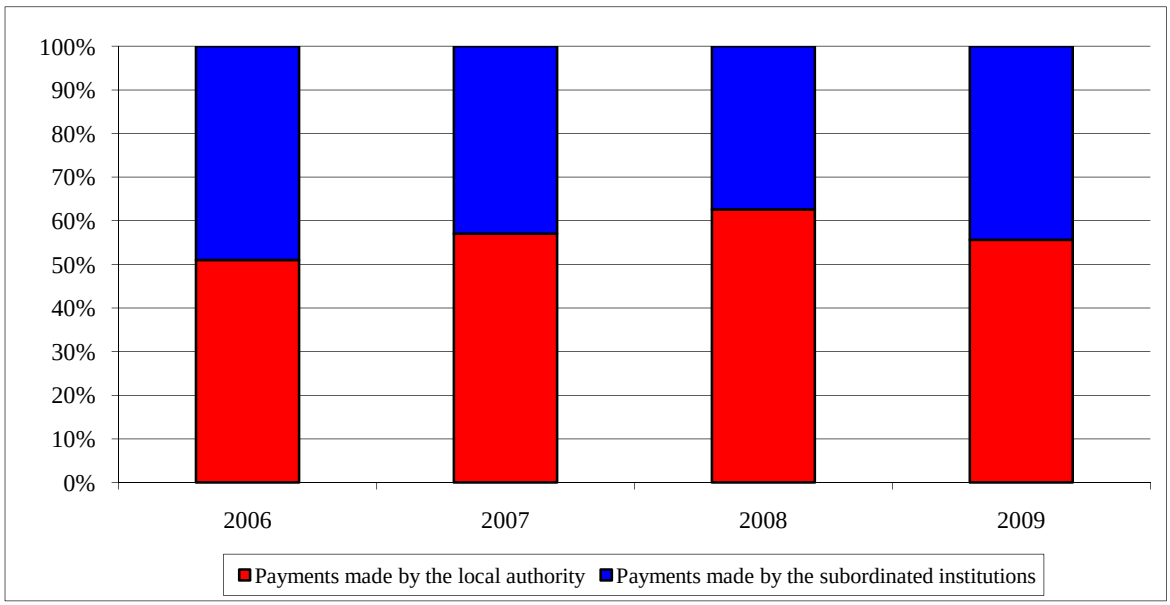
With the increasing number of subordinate institutions (including those similar among those receiving funding), the public authority has transferred large amounts to the institutions to make payments. However, payments made by the public authority have remained high, but with a tendency towards stabilization.



Source: Council of Ilfov County.

Figure 2. *Payments made by the Council of Ilfov County and the subordinated institutions (2006-2009)*

If we analyze the structure of the payments made by the local authority (Ilfov County Council) compared with subordinate institutions we see a slight increase in the share of payments made by subordinate institutions.



Source: Council of Ilfov County.

Figure 3. *The structure of the payments made by the Ilfov County Council and the subordinated institutions (2006-2009)*

In terms of the functional structure of payments, each area is presented. Typically, the structures have taken over the whole range of payments kept them from the times when they were subordinate to ministries. The new activities are provided directly by the authorities until it is deemed appropriate to the establishment of an independent government. In the case of the Ilfov local budget, Ilfov County Council ensures priority payments from government chapters, local public debt interest, education (Program Cake and milk), culture and religion (wages of non-clerical staff), and transportation (county roads). Public institutions subordinated to Ilfov County Council made payments primarily in the areas of other services, defense and public order, education, health and social care (Table 1).

4. Conclusions

The organization at the local government has an impact on public finances, particularly in regard to payments to be made up based on the local budgets funds. The organization is closely related to the responsibilities (and often structures) transferred in the process of decentralization.

Outsourcing certain activities, and, hence, the corresponding payments, through the public institutions that are subordinated to local public authorities represent the solution identified for not overcrowd the establishment of the authority, especially when it comes to activities that require a substantial amount of resources (human, material and logistical). Outsourcing has several notable advantages, but requires a reduction in direct control of the authority.

The comparative analysis of the local budget for Ilfov County (2006-2009) reveals that there is an increase in the number of public institutions and a diversity of areas in which they operate. In terms of financial funds, the most significant amounts are still managed by the Ilfov County Council (as a public authority) and subordinate institutions enjoy an obvious confidence with regard to the amount of payments that are responsible for further outsourcing by them.

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ELASTICITY EXPENDITURE ANALYSIS FOR THE NATIONAL SECURITY AND PUBLIC ORDER

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Abstract. *The institutions of public order and national security benefits of some of the biggest benefits from the state budget and is funded primarily from redistribution of gross domestic product. Spending on public order are non-productive expenditure, which consumes a part of the final gross domestic product. The main objective of the article is the analysis public policy response costs in Romania to the modification of gross domestic product and total expenditures of the state budget.*

Keywords: public expenditure; forecasting; elasticity; regression; autoregressive.

JEL Code: H56.
REL Code:13Z.

1. Introduction

Public finances are defined in relation to the rule and its central and local institutions, ie the existence and functioning of public institutions. Financial commitments appear as resources that generate receivables (collection rights) or as costs that can generate obligations (debts to be paid). Establishment and administration of public funds are the subject of constitutional law and administrative law (Stroe, Armeanu, 2004, p. 5).

Expenditure for public institutions, public order and the national security, in terms of economic content can be classified as current expenditure, expenditure transfers, charges for reimbursable projects funded by external funds post-accession, social expenditure, expenditure of non-financial assets financial transactions which involve repayment of loans contracted by authorizing. Current expenditure is characterized by being a final consumption and gross domestic product in this category are personnel costs, supplies and services, interest, transfers, social assistance as the active non-financial costs are an advance of gross domestic product, investment. The functional classification identifies the sectors of public institutions and the Ministry of Administration and Interior is classified in Chapter Defense, public order and national security.

2. Financing institutions of national security and public order

Financing institutions of public order and national security are achieved mainly by resources from public funds through the redistribution of gross domestic product, which provides funds to cover expenses necessary to carry out their duties and obligations of public order on line.

Expenditure on law and order and national security are allocated to fund current needs but also to continue the process of reorganization, operation and upgrading of skills necessary security missions and expanded collective defense alliance in the European and North Atlantic Alliance and NATO standards also the priority of the Ministry of Interior for 2010 relating to the commitments assumed by Romania for joining the Schengen area at the date set March 2011 to ensure full freedom of movement of Romanian citizens, increase safety and protection for citizens combating crime, terrorism, organized crime and border. Expenditure on public

order and national security in GDP varies from year to year depending on economic development and public needs, the degree of indebtedness.

Amid global crisis of the Romanian government's main objective is to increase the absorption capacity of resources available in collected taxes to the state budget, external funding grants from the European Union. In this context, it is necessary to take exceptional measures that the efficiency of their drive to reduce the effects of crisis and national economic recovery and hence the gross domestic product.

Thus, structural assistance grant is especially valuable, since over a considerable part of the economic efforts that would have made on their own (Florescu, 2010, p. 272).

3. Expenditure elasticity with national security and public order between 2000 and 2010

3.1. Model

The model is based on the statistical procedures (Stroe, Focşeneanu, Brasoveanu, 2004). With this model the expenditure forecasts for public order and national security of the Ministry of Interior can be estimated according to the historical trend of the evolution of GDP and total expenditure of the state budget.

To determine the pattern we've completed the following steps:

Phase I: We considered data series for the years 2000 - 2010;

Phase II: We consider the elasticity of expenditure on public order and national security:

- in relation to GDP (e_I)

$$e_{COPSN/PIB} = \frac{COPSNt / COPSN_{t-1} - 1}{PIBt / PIB_{t-1} - 1}$$

where: t= 2000, 2001, 2002, 2003,……2010

- in relation to the total expenditure budget (e_{II})

$$e_{COPSN/CTB} = \frac{COPSNt / COPSN_{t-1} - 1}{CTBt / CTB_{t-1} - 1}$$

where: t = 2000, 2001, 2002, 2003, ... 2010

Phase III: We will determine how a regression equation for each of them e_I and e_{II}

a) temporal regression

$$e_t = a \times t + b$$

b) autoregressive

$$e_t = m \times e_{t-1} + n$$

To explain the change in elasticity over the period 2000 – 2010, I considered linear model of the form:

$$y = a \times x_t + b$$

where:

yt – expenditure on public order and national security in t

xt-GDP and that the total state budget expenditure in year t

$$E(t) = \sum_{t=1}^{T} (a. \times x_t + b - y_t)^2 = \min$$

$$\frac{\partial E}{\partial a} = 2 \times \sum_{t=1}^{T} (a \times x_t + b - y_t) \times x_t = 0$$

$$\frac{\partial E}{\partial b} = 2 \times \sum_{t=1}^{T} (a \times x_t + b - y_t) = 0$$

$$a \times \sum_{t=1}^{T} x_t^{\,2} + b \times \sum_{t=1}^{T} x_t = \sum_{t=1}^{T} x_t \times y_t$$

$$a \times \sum_{t=1}^{T} x_t + n \times b = \sum_{t=1}^{T} y_t$$

Notes:
- The temporal regression n = 10
- For autoregressive n = 9

3.2. Model application for gross domestic product, total state budget expenditures and public expenditure in public order and national security

For application development we processed the elasticity of gross domestic product, the total state budget expenditure and revenue and expenditure developments approved for the Ministry of Administration and Interior in the current public policy concerning expenses for the years 2000 to 2010. Nominal level of spending on public order and national security, with total expenditures of the state budget and the level of nominal gross domestic product are expressed in national currency units at current prices.

Table 1

– Mil. current prices –

Years	Gross Domestic Product	Total expenditures of state budget	Total expenditure "Public policy and national security"
2000	80,984.6	14,375.53	1,128.63
2001	117,945,8	18,401.22	2,001.71
2002	152,017	23,638.63	2,537.94
2003	197,427.6	29,107.81	3,239.53
2004	247,368	35,132.06	3,885.24
2005	287,200	37,017.69	2,880.81
2006	342,400	43,655.25	6,904.44
2007	404,700	64,373.52	10,094.38
2008	503,900	80,888.54	11,507.46
2009	491.273	94,781.78	10,795.67
2010	211,414.80	101,678.40	6,448.10

Source: own processing of data by the National Statistics Institute, Ministry of Finance and Administration and Interior Ministry.

Applying the model presented above relations and solving the model resulted:

Stage II:

- The elasticity of expenditure on public order and national security:

a) in relation to GDP (EI)

Table 2

The elasticity of expenditure with the public in relation to GDP, 2000-2010

– mln lei –

Years	Gross Domestic Product	Total expenditure "Public policy and national security"	Elasticity
2000	80,984.6	1,128.63	-
2001	117,945.8	2,001.71	1.67
2002	152,017	2,537.94	0.93
2003	197,427.6	3,239.53	0.93
2004	247,368	3,885.24	0.8
2005	287,200	2,880.81	- 1.63
2006	342,400	6,904.44	7.37
2007	404,700	10,094.38	2.56
2008	503,900	11,507.46	0.56
2009	491,273	10,795.67	3
2010	211,414.80	101,678.40	0.60

The relationship between the two indicators is direct, elastic or inelastic, the value for 2005 is atypical. Negative values are the result of measures to restructure the system and resizing effort to finance specific public order and national security activities.

b) in relation to the total expenditure budget (EII).

Table 3

The elasticity of expenditure with the public in relation to the total state budget expenditure in 2000-2010 mln

– mln lei –

Years	Total expenditures of state budget	Total expenditure "Public policy and national security"	Elasticity
2000	14,375.53	1,128.63	-
2001	18,401.22	2,001.71	2.75
2002	23,638.63	2,537.94	0.96
2003	29,107.81	3,239.53	1.22
2004	35,132.06	3,885.24	0.95
2005	37,017.69	2,880.81	- 5.2
2006	43,655.25	6,904.44	2.22
2007	64,373.52	10,094.38	0.98
2008	80,888.54	11,507.46	0.54
2009	94,781.78	10,795.67	- 0.35
2010	101,678.40	6,448.10	- 5.71

The relationship between the two indicators is direct, elastic or inelastic, but for the years 2005, 2009 and 2010 negative values appear as a result of downsizing efforts to finance specific activities of public order and national security, wage reductions and reduce of all expenditures, depending on the extent of budget adjustments that seem to have a marked effect on elasticity.

Phase III: With two rows of elasticity EI and EII will determine how a regression equation for each of them and EII:

a) temporal regression

- For the "Expenditure with public order and national security and the GDP" of the results:

$e_t = 0{,}1 \times t + 1{,}13$ with the following parameters a = 0.1
b = 1.13

- For the "Expenditure with public order and national security and the total expenditure of the state budget" resulted following parameters:

$e_t = 0{,}49 \times t + (-2{,}86)$ with the following parameters a = 0.49
b = - 2.86

b) autoregressive

- For the "Expenditure with public order and national security and the GDP" of the results:

$e_t = -0{,}31 \times e_{t-1} + 2{,}24$ with the following parameters m = - 0.31
n = 2.24

- For the "Expenditure with public order and national security and the total expenditure of the state budget" resulted following parameters:

$e_t = -7 \times e_{t-1} + (-4{,}39)$ with the following parameters m = - 7
n = - 4.39

4. Elasticity estimation of expenditure elasticity national public order and national security experience for year 2011

With this model can calculate the elasticity for 2011, based on which one can make a prediction of the costs of public order and national security for that year.

$$e_{COPSN/PIB} = \frac{COPSN_{2011} / COPSN_{2010} - 1}{GDP_{2011} / GDP_{2010} - 1} \qquad e_{COPSN/PIB} = \frac{COPSN_{2011} / COPSN_{2010} - 1}{CTB_{2011} / CTB_{2010} - 1}$$

I assume that they keep the same budget in 2011 as in 2010 going on the assumption stationary economic growth, we used as case cover for proper level prediction, more or official regarding on GDP and budgeting for the year 2011. Regarding the official GDP, estimates are going to within ± 1%, and the trend is to reduce budget expenditures sensitive (- 1%).

The calculated values of elasticities are:

a) temporal model

i) e_{2011} = 0.1 x 11+ 1.13 where results: eCOPSN/GDP = 6.577,06
ii) e_{2011} = 0.49 x 11+ (-2.86) eCOPSN/CTB = 6.284,96

b) autoregressive model

i) e_{2011} = (-0.31) x e_{2010} + 2.24 where results: eCOPSN/GDP = 6580,29
ii) e_{2011} = 0.42 x e_{2010} + (- 0.68) eCOPSN/CTB = 6.315,91

Forecast expenditure on public order and national security in 2011, according tothe assumption of stationarity, the present period of recession of the national economy, we have the following predictions of these expenses for 2011:

$COPSN_{2011}$ a) i) 6,577.06 mln lei
ii) 6,284.96 mln lei
b) i) 6,580.29 mln lei
ii) 6,315.91mln lei.

In 2011 we will know if these values projected expenditures with public order and national security will be good.

Conclusions

The above calculations show that elasticities for "Expenditures with public order and national security and the GDP is between (- 1.63 and 7.37%), the average elasticity is 1.68 and for "the public policy and national security expenditures of the state budget total costs" are between -5.71 and 2.75%, with an average elasticity of -1.79. I think that the elasticity indicator is feasible to make estimations and the model can be used for forecasting.

Also, using this model can make estimates of prediction can be made, based on historical trend of development of gross domestic product, and other nature of expenses that are financed through the reallocation of amounts in gross domestic product, or there can be made forcasting estimates forecast and current expenditure for major public order and national security "Personnel expenses", "Expenditure on goods and services", "Expenditure on non-financial assets" of the Ministry of Administration and Interior of Romania by the historical trend of development of their.

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EASURING EFFECTIVE CORPORATE TAXATION IN ROMANIA USING ORWARD-LOOKING METHODOLOGY*

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Abstract. *From various methodologies used to compute effective taxation of companies, one in particular is enjoying a special attention. We refer to the so-called "Devereux & Griffith" methodology which based on the essential features of the tax code try to compute effective tax rates (marginal and average) of a hypothetical investment project taken by a company. Based on this methodology, the paper will compute the effective tax rates in Romania after 1990, taking into account the main changes in the tax code throughout the period. The paper shows that EMTR and EATR follow closely the statutory tax rates and reveals the impact of accelerated depreciation and that of changes in the useful life of assets.*

Keywords: taxation; effective marginal tax rates; effective average tax rates.

JEL Codes: H22, H25.
REL Codes: 11D, 11E, 13C.

1. Introduction

Computing effective tax rates borne by companies is a matter of great interest for economists. Two types of methodologies have been developed in order to address this issue. The first one, based on micro-level firm data taken from financial reports, is the so-called backward-looking methodology. The second one, based either on hypothetical future investment project, either on hypothetical future model firm behavior is called forward-looking methodology. Each of these methodologies has shortcomings and advantages, but each of them was intensively used in a series of studies meant to shed light on the topic.

The forward-looking methodology based on hypothetical future investment project has its beginning in the seminal papers of Hall and Jorgenson (1967), and was developed by King and Fullerton (1984) and more recent by Devereux and Griffith (1998, 2003). The variant based on hypothetical model firm future behavior is based on the "European Tax Analyzer" model, developed by a research team from ZEW Mannheim and University of Mannheim. For the scope of this paper we will use the "Devereux & Griffith" approach in order to compute effective tax rates for Romania. The section 2 of the paper highlights the major features of the methodology, while section 3 presents the most important changes in Romanian tax system and computes the effective tax rates, both marginal and average. Section 4 concludes.

2. A short description of methodology

King and Fullerton (1984) proposed a framework based on tax "wedge" resulted from the difference between the rate of return on investment and the rate of return on savings used to finance the investment. The proportionate difference between the two rates (i.e. pre-tax rate of return on a marginal investment *p* and the post-tax rate of return for the provider of funds *s*) constitutes the effective marginal tax rate $= (\tilde{p} - s)/\tilde{p}$. Defining the cost of capital as the pre-tax minimum rate of return that an investment must earn in order to provide the owner of funds the same post tax return as he would obtain from investing at market real interest rate, they find that it depends on asset type (industrial buildings, machinery, inventories), industry

* *This work was supported by CNCSIS-UEFISCSU, Project No. PN-II-RU-PD code 340/2010.*

(manufacturing, commerce, other industry), source of finance (retained earnings, new equity and debt) and on the provider of funds (households, tax-exempt institutions, insurance companies). These factors are heavily influenced by the tax systems through issues as capital allowances, inventory valuation, corporate taxation and personal taxation.

The most important contributions to this methodological framework was brought by Devereux and Griffith (1998a, 1998b), which extended the model by some detailed approach to discrete domestic and cross-border investment and also by differentiating the discount rates used by different provider of funds. For the purpose of this paper we will consider only the case of a domestic investment, leaving aside the case of a cross-border investment. This methodology was intensively used by European Commission (2001) in a series of studies regarding company taxation in European Union. Those who are particularly interested will find the methodology extensively explained in Devereux (1998b, 2003) and European Commission (2001)[(1)]. The most recent version of the study consists in a research project prepared for the European Commission (Devereux et al, 2008), which extended the countries surveyed (Romania is now included only for 2005, 2006 and 2007), while containing a series of slight changes of the methodology used.

Basically, the methodology will compute the effective marginal tax rate (EMTR) and effective average tax rate (EATR) of a hypothetical investment starting from the cost of capital which is the minimum rate of return before taxes for the investment to be undertaken. This rate must be at least equal to the real interest rate in order the investor to put its money at stake. The difference between the two rates divided by the cost of capital gives the EMTR = $(\tilde{p} - r)/\tilde{p}$.

There are five types of investments, each of them equally weighted (20% each): intangibles, industrial buildings, machinery, financial assets and inventories. Also, three sources of financing are considered: retained earnings, new equity and debt, in proportions set by OECD (2001): 55%, 10% and, respectively, 35%. Based on the assumptions that markets are competitive, the investment decision is determined by the tax system through: corporate taxation rate and corporate tax base, tax treatment of capital allowances and inventories, personal taxation and inflation. It is worth mentioning that this model can be extended at the personal shareholder level by taking into consideration not only the corporate taxes, but also personal taxes (dividend tax, capital gain tax, different tax credits).

For each source of finance, the cost of capital is computed by taking into consideration the initial investment expense, the future after-tax returns of the investment, but also the tax reliefs resulted from the investment. The model implies that the firm increases its investment in period *t* by one unit, while reducing it in period *t+1* by the amount that leaves the capital stock unchanged. In the presence of taxes, due to the allowances for investment, the net present value of the cost of investment is 1-*A*, where *A* stands for the present value of allowances. In period *t+1*, this is worth $(1-\delta)(1+\pi)(1-A)$, so the company must reduce its investment by this amount. The return from the additional investment in period t+1 is $(p+\delta)(1+\pi)(1-\tau)$, so the post-tax net present value (for the retained earnings financing) is:

$$R^{RE} = -(1-A) + \frac{(1-\delta)(1+\pi)(1-A)+(p+\delta)(1+\pi)(1-\tau)}{1+\rho}, \quad (1)$$

where:

A = present discounted value of allowances resulted from depreciation of one unit of investment;

p = real financial rate of return on investment;

δ = rate of economic depreciation;

π = rate of inflation

τ = corporate taxation rate;

ρ = discount rate (equal to nominal interest rate i - $(1+r)(1+\pi)=(1+i)$)

Setting R = 0, the cost of capital for retained earnings is:

$$\tilde{p}^{RE} = \frac{(1-A)}{(1+\pi)(1-\tau)}\{\rho + \delta(1+\pi) - \pi\} - \delta \quad (2)$$

When the project is financed through new equity *(NE)*, the cash flows are the same as for the retained earnings ($R^{RE} = R^{NE}$), so is the cost of capital ($\tilde{p}^{RE} = \tilde{p}^{NE}$). When debt financing (D) is introduced, the post-tax net present value suffers an alteration due to the repaying of debt of $1+i$ in $t+1$ period. The firm borrows $1-\tau\varphi$ in period t and must repay $(1-\tau\varphi)(1+i)$ in period $t+1$. As interest is tax deductible, the tax savings are $(1-\tau\varphi)i\tau$, so the firm actually repays $(1-\tau\varphi)(1+i(1-\tau))$. This generates additional cash flows (F^D) generated by the repaying of debt that could be expressed as follows:

$$F^D = (1-\tau\varphi) - \frac{(1-\tau\varphi)(1+i(1-\tau))}{1+\rho} = \frac{(1-\tau\varphi)(\rho - i(1-\tau))}{1+\rho}, \quad (3)$$

where:

φ = *rate of capital allowance for investment;*

i = *nominal rate of interest.*

The cost of capital can be derived setting the present value of total cash-flows ($R^D = R^{RE} + F^D$) to 0:

$$\tilde{p}^D = \frac{(1-A)}{(1+\pi)(1-\tau)}\{\rho + \delta(1+\pi) - \pi\} - \frac{F^D(1+\rho)}{(1+\pi)(1-\tau)} - \delta \quad (4)$$

So, the cost of capital for the three sources of finances is that from equation (2) for retained earnings and new equity financing, respectively that from equation (4) for debt financing.

In the last version of the methodology (Devereux et al., 2008), there are some changes meant to simplify the calculus and also to capture the influence of some additional tax factors such the inventories evaluation method and the taxation of company real properties. So, the post-tax net present value and the cost of capital can be expressed as follows:

Table 1

The post-tax net present value

	Post-tax net present value
Retained earnings	$R^{RE} = \frac{(\rho+\delta)(1+\pi)(1-\tau) - v\tau\pi - [\rho+\delta(1+\pi)-\pi](1-A) - (1+\rho)e}{1+\rho}$
New equity	$R^{NE} = R^{RE} + F^{NE}$, where $F^{NE} = -\frac{e(1+e)}{1+\rho}$
Debt	$R^D = R^{RE} + F^D$, where $F^D = \frac{(1+e)[\rho - i(1-\tau)]}{1+\rho}$

Source: Devereux et al., 2008.

Derived from this (R=0), the cost of capital is:

Table 2

The cost of capital

	Cost of capital
Retained earnings	$\tilde{p}^{RE} = \frac{(1-A)\{\rho+\delta(1+\pi)-\pi\} + v\tau\pi + (1+\rho)e}{(1+\pi)(1-\tau)} - \delta$
New equity	$\tilde{p}^{NE} = \tilde{p}^{RE} - \frac{F^{NE}(1+\rho)}{(1+\pi)(1-\tau)} = \tilde{p}^{RE} + \frac{\rho(1+e)}{(1+\pi)(1-\tau)}$
Debt	$\tilde{p}^{D} = \tilde{p}^{RE} - \frac{F^{D}(1+\rho)}{(1+\pi)(1-\tau)} = \tilde{p}^{RE} - \frac{(1+e)[\rho - i(1-\tau)]}{(1+\pi)(1-\tau)}$

Source: Devereux et al., 2008.

The term $v\tau\pi$ is used for capturing the effect of inventory evaluation method used by company, where $v = 1$ for FIFO method, $v = 0$ for LIFO and $v = 0.5$ for weighted average cost. Also, $v = 1$ in the case of a financial investment (financial assets). The impact of other taxes

on capital is reflected by the term $(1+\rho)e$, where e stands for the effective real estate tax rate (only for buildings). The effective, as opposite to nominal suggests the fact that in general, the property taxes are deductible from corporate tax base, thus $e=(1-\tau)n$, n being the nominal tax rate for real estate.

Starting from the cost of capital, computing EMTR and EATR became very easy:

$EMTR = \frac{\rho - r}{\rho}$, where r is real rate of interest $1 + i = (1 + r)(1 + \pi)$

$EATR = \frac{R^* - R}{p/(1+r)}$, where:

R^* = *is net present value in the absence of tax:* $(p-r)/(1+r)$

p = *pre-tax real rate of return (assumed to be 20%)*

Alternatively, EATR can be expressed as follows:

$$EATR = \frac{\rho}{p} EMTR + \frac{p - \rho}{p},$$

EMTR is the minimum rate of return that an investment must earn for the company to earn a pre-tax rate of return (cost of capital) high enough to remunerate the shareholders in the same way as they would have earned from a risk-free investment (real interest rate). So, the harshest the tax system is, the higher the cost of capital will be.

EATR is used to calculate the effective tax rate of high profitable investment for which the fixed pre-tax rate of return p is well above the cost of capital ρ. Such is the case in which a company needs to choose from multiple exclusive jurisdictions where to implement a specific investment project (discrete investment choices).

3. The case of Romania

In this methodological framework we will compute the effective tax rates of companies taking into account the main characteristics and evolutions of the Romanian corporate tax system. Some calculations were made for the period 2005-2007 by Devereux and al. (2008), thus our task will be to extend this calculus to the whole period that started from 1990. Several assumptions need to be made. The values for variables taken into account are fixed and are those set by EC (2001), Devereux et al. (2008). This was done in order to isolate the impact of tax system on investment returns. While keeping these variables constant, any change in the tax system features is meant to highlight the impact of taxation. Hence, we will proceed in the same way, using these set of preset variables and changing only the tax system variables, of which the most important are: corporate tax rate, depreciation allowances, real estate tax rates, inventory evaluation method.

Once EMTR and EATR computed, the methodology allows changes of the preset variables according to the economic reality, thus revealing more accurate data on effective tax burden borne by companies. This is a terrain that was not yet explored, yet offering a great deal of regional cross-countries comparisons, but also for an inter-temporal analysis for a specific national tax system.

Briefly, the preset non-tax variables consist in:

- *real interest rate r: 5%*
- *inflation rate π: 2%*
- *nominal interest rate i:* $1 + i = (1 + r)(1 + \pi) = 7.1\%$;
- *discount rate* $\rho = i = 7.1\%$;
- *the economic depreciation rate δ: industrial buildings (3.1%), machinery (17.5%), intangibles (15.35%)*

The tax variables are:

- *corporate tax rate τ;*
- *the effective real estate tax rate (only for buildings) e;*
- *present discounted value of allowances resulted from depreciation of one unit of investment A;*
- *coefficient used only for inventories and financial assets v.*

The corporate tax rates and real estate tax rates are illustrated in the following table.

Table 3

Corporate tax rate and real estate tax rate in Romania during 1990-2010

Period	Corporate tax rate (τ) - %	Period	Nominal real estate tax rate (n) - %
1990	0 - 50	1990 -1994	0.5 - 1.5
1991	0 - 77	1995 - 1997	1.5
1992 - 1994	30; 45	1998 - 2002	1 - 1.5
1995 - 1999	38	2003 - 2006	0.5 - 1
2000 - 2004	25	2007 - 2010	0.25 - 1.5
2005 - 2010	16		

Source: fiscal legislation.

Until 1995, Romania had a progressive taxation of companies' profits, with rates ranging from 0 to 77 percents. In order to compute the effective tax rates, we have considered the average of the periods taken into consideration: 25% for 1990, 38.5% for 1991, 37.5% for 1992 - 1994. Identically, the nominal real estate tax rates are: 1% for 1990 - 1994, 1.5% for 1995 - 1997, 1.25% for 1998 - 2002, 0.75% for 2003 - 2006, 0.875% for 2007 - 2010.

Table 4

Effective real estate tax rate in Romania during 1990-2010

Period	Corporate tax rate (τ) %	Nominal real estate tax rate (n) %	Effective real estate tax rate (e) %
1990	25	1	0.75
1991	38.5	1	0.615
1992 - 1994	37.5	1	0.625
1995 - 1997	38	1.5	0.93
1998 - 1999	38	1.25	0.775
2000 - 2002	25	1.25	0.9375
2003 - 2004	25	0.75	0.5625
2005 - 2006	16	0.75	0.63
2007 - 2010	16	0.875	0.735

Source: own computation.

In order to compute the present discounted value of tax savings resulted from depreciation of one unit of investment (A), it is necessary to identify the tax parameters involved. The most important is the useful life of an asset as set by fiscal authorities (see Table 5).

Table 5

Life time period of main types of assets in Romania during 1990 - 2010

	Industrial buildings	Machinery	Intangibles
1990 - 1993	60	15	10
1994 - 1998	50	9	10
1999 - 2004	50	9	10
2005 - 2010	40	7	10

Source: fiscal legislation.

For intangibles, the assumptions of Devereux et al. (2008) were taken into consideration for the whole period: as the tax code does not provide a specific useful life of such assets, a period of 10 years was considered. As for machinery, Devereux and al (2008) considered a seven years period for the period beginning in 2005, based on the same kind of

assumption (no specific useful life mentioned by the tax code). Here, we have considered the average changes in the useful life of assets, where for the last period the shortest period (the lower limit of the interval) was taken into account. As for the 1990-1994, the useful life of assets (for machinery) was that from the communist regime, and hence the useful life of the assets was computed by taking into consideration the reduction made in 1994 (20%-65%, hence an average of approximately 40%. For industrial buildings, the standard useful life was considered at 60 years. As for the depreciation method the most advantageous method was considered (accelerated depreciation), with the exception of buildings, in which case the straight-line method was used. Additionally, for the 1990 - 1994 period the straight-line method was applied for all types of assets.

As for inventories we assume the LIFO method (v = 0), and for financial assets v = 1 during the whole period.

Now, we can proceed to the computation of cost of capital and effective tax rates for Romania, during the whole period starting from 1990. The results are shown in table 6.

Table 6

Cost of capital, EMTR, EATR in Romania during 1990 - 2010 (%)

			Build	Intan	Mach	FinA	Inv	Mean				Build	Intan	Mach	FinA	Inv	Mean
1990	$\tilde{p}$	RE	8.1	7.0	8.0	7.3	6.7	7.4	1991-1993	$\tilde{p}$	RE	9.9	8.8	10.5	9.3	8.1	9.3
		NE	8.1	7.0	8.0	7.3	6.7	7.4			NE	9.9	8.8	10.5	9.3	8.1	9.3
		D	5.8	4.7	5.7	5.0	4.3	5.1			D	5.6	4.5	6.2	5.0	3.8	5.0
		Mean	7.3	6.2	7.2	6.5	5.9	6.6			Mean	8.4	7.3	9.0	7.8	6.6	7.8
	EMTR	RE	38.5	29.0	37.3	31.7	25.0	32.3		EMTR	RE	49.4	42.9	52.2	46.0	38.0	45.7
		NE	38.5	29.0	37.3	31.7	25.0	32.3			NE	49.4	42.9	52.2	46.0	38.0	45.7
		D	13.6	-5.9	11.6	0.0	-15.0	0.8			D	10.5	-11.4	19.4	0.0	-31.6	-2.6
		Mean	31.6	19.7	30.2	23.2	14.6	23.9			Mean	40.3	31.1	44.3	35.7	23.9	35.1
	EATR	RE	30.5	26.4	29.9	27.5	25.0	27.8		EATR	RE	43.6	40.1	45.5	41.7	38.0	41.8
		NE	30.5	26.4	29.9	27.5	25.0	27.8			NE	43.6	40.1	45.5	41.7	38.0	41.8
		D	21.7	17.7	21.2	18.8	16.3	19.1			D	30.3	26.9	32.2	28.5	24.8	28.5
		Mean	27.4	23.4	26.9	24.4	22.0	24.8			Mean	39.0	35.5	40.8	37.1	33.4	37.2
1993-1994	$\tilde{p}$	RE	9.7	8.8	8.8	9.3	8.1	8.9	1995-1997	$\tilde{p}$	RE	10.2	7.5	7.6	9.3	8.1	8.5
		NE	9.7	8.8	8.8	9.3	8.1	8.9			NE	10.2	7.5	7.6	9.3	8.1	8.5
		D	5.4	4.5	4.6	5.0	3.8	4.6			D	5.9	3.2	3.3	5.0	3.8	4.2
		Mean	8.2	7.3	7.4	7.8	6.6	7.4			Mean	8.7	6.0	6.1	7.8	6.6	7.0
	EMTR	RE	48.3	42.9	43.5	46.0	38.0	43.7		EMTR	RE	50.9	32.9	33.9	46.0	38.0	40.4
		NE	48.3	42.9	43.5	46.0	38.0	43.7			NE	50.9	32.9	33.9	46.0	38.0	40.4
		D	7.0	-11.4	-9.1	0.0	-31.6	-9.0			D	15.0	-56.9	-51.6	0.0	-31.6	-25.0
		Mean	38.8	31.1	32.0	35.7	23.9	32.3			Mean	42.4	16.1	17.7	35.7	23.9	27.1
	EATR	RE	43.0	40.1	40.4	41.7	38.0	40.7		EATR	RE	44.6	36.1	36.5	41.7	38.0	39.4
		NE	43.0	40.1	40.4	41.7	38.0	40.7			NE	44.6	36.1	36.5	41.7	38.0	39.4
		D	29.7	26.9	27.2	28.5	24.8	27.4			D	31.2	22.9	23.2	28.5	24.8	26.1
		Mean	38.3	35.5	35.8	37.1	33.4	36.0			Mean	39.9	31.5	31.8	37.1	33.4	34.7
1998-1999	$\tilde{p}$	RE	9.9	7.5	7.6	9.3	8.1	8.5	2000-2002	$\tilde{p}$	RE	8.3	6.3	6.4	7.3	6.7	7.0
		NE	9.9	7.5	7.6	9.3	8.1	8.5			NE	8.3	6.3	6.4	7.3	6.7	7.0
		D	5.6	3.2	3.3	5.0	3.8	4.2			D	5.9	4.0	4.1	5.0	4.3	4.7
		Mean	8.4	6.0	6.1	7.8	6.6	7.0			Mean	7.5	5.5	5.6	6.5	5.9	6.2
	EMTR	RE	49.6	32.9	33.9	46.0	38.0	40.1		EMTR	RE	39.6	21.1	21.8	31.7	25.0	27.8
		NE	49.6	32.9	33.9	46.0	38.0	40.1			NE	39.6	21.1	21.8	31.7	25.0	27.8
		D	11.1	-56.9	-51.6	0.0	-31.6	-25.8			D	15.7	-24.6	-22.7	0.0	-15.0	-9.3
		Mean	40.6	16.1	17.7	35.7	23.9	26.8			Mean	32.9	9.4	10.4	23.2	14.6	18.1
	EATR	RE	43.8	36.1	36.5	41.7	38.0	39.2		EATR	RE	31.0	23.8	24.0	27.5	25.0	26.2
		NE	43.8	36.1	36.5	41.7	38.0	39.2			NE	31.0	23.8	24.0	27.5	25.0	26.2
		D	30.4	22.9	23.2	28.5	24.8	26.0			D	22.3	15.1	15.3	18.8	16.3	17.5
		Mean	39.1	31.5	31.8	37.1	33.4	34.6			Mean	28.0	20.7	20.9	24.4	22.0	23.2
2003-2004	$\tilde{p}$	RE	7.8	6.3	6.4	7.3	6.7	6.9	2005-2006	$\tilde{p}$	RE	6.8	5.8	5.7	6.3	6.0	6.1
		NE	7.8	6.3	6.4	7.3	6.7	6.9			NE	6.8	5.8	5.7	6.3	6.0	6.1
		D	5.4	4.0	4.1	5.0	4.3	4.6			D	5.5	4.4	4.4	5.0	4.6	4.8
		Mean	6.9	5.5	5.6	6.5	5.9	6.1			Mean	6.4	5.3	5.2	5.9	5.5	5.6
	EMTR	RE	35.5	21.1	21.8	31.7	25.0	27.0		EMTR	RE	26.7	13.2	12.3	21.0	16.0	17.8
		NE	35.5	21.1	21.8	31.7	25.0	27.0			NE	26.7	13.2	12.3	21.0	16.0	17.8
		D	7.7	-24.6	-22.7	0.0	-15.0	-10.9			D	8.9	-12.7	-14.3	0.0	-8.1	-5.2

			Build	Intan	Mach	FinA	Inv	Mean
		Mean	27.9	9.4	10.4	23.2	14.6	17.1
	EATR	RE	29.1	23.8	24.0	27.5	25.0	25.9
		NE	29.1	23.8	24.0	27.5	25.0	25.9
		D	20.3	15.1	15.3	18.8	16.3	17.1
		Mean	26.0	20.7	20.9	24.4	22.0	22.8
2007-2010	$\hat{p}$	RE	7.0	5.8	5.7	6.3	6.0	6.1
		NE	7.0	5.8	5.7	6.3	6.0	6.1
		D	5.6	4.4	4.4	5.0	4.6	4.8
		Mean	6.5	5.3	5.2	5.9	5.5	5.7
	EMTR	RE	28.1	13.2	12.3	21.0	16.0	18.1
		NE	28.1	13.2	12.3	21.0	16.0	18.1
		D	11.0	-12.7	-14.3	0.0	-8.1	-4.8
		Mean	22.9	5.6	4.5	14.7	8.9	11.3
	EATR	RE	20.2	15.2	14.9	17.6	16.0	16.8
		NE	20.2	15.2	14.9	17.6	16.0	16.8
		D	14.6	9.6	9.4	12.0	10.4	11.2
		Mean	18.2	13.3	13.0	15.6	14.1	14.8

			Build	Intan	Mach	FinA	Inv	Mean
		Mean	21.3	5.6	4.5	14.7	8.9	11.0
	EATR	RE	19.7	15.2	14.9	17.6	16.0	16.7
		NE	19.7	15.2	14.9	17.6	16.0	16.7
		D	14.0	9.6	9.4	12.0	10.4	11.1
		Mean	17.7	13.3	13.0	15.6	14.1	14.7

Mean	$\hat{p}$	EMTR	EATR	τ	EATR/τ
1990	6.6	23.9	24.8	25	99.2
1991-1993	7.8	35.1	37.2	38	97.8
1993-1994	7.4	32.3	36.0	38	94.8
1995-1997	7.0	27.1	34.7	38	91.4
1998-1999	7.0	26.8	34.6	38	91.0
2000-2002	6.2	18.1	23.2	25	92.8
2003-2004	6.1	17.1	22.8	25	91.2
2005-2006	5.6	11.0	14.7	16	92.0
2007-2010	5.7	11.3	14.8	16	92.7

Source: own computations.

For 2005-2006 and 2007-2010, the results are almost the same as those found by Devereux et al. (2008). For the whole period 1990 - 2010, it is worthwhile to see that EMTR, and especially EATR follow closely the statutory tax rates. The maximum values for EMTR and EATR were attained in 1991-1993, when the statutory tax rate was at approximately 38% and no accelerated depreciation was allowed. Also, in that period the useful life of main assets was the longest. It is easy to see that in the following years, even if the statutory tax rate was maintained at 38%, the EMTR and EATR have recorded a slight decline mainly due to the accelerated depreciation and the reduction of the useful life of the assets. The reduction of the EMTR for 1995-1997 is mainly due to the adoption of the accelerated depreciation for machineries and intangibles that offset the increase of EMTR for buildings generated by the augmentation of real estate tax rates. Also, it is interesting to compare the 1990 period to 2000 - 2004 period, when the statutory tax rate was the same, respectively 25%. While the EATRs for financial assets and inventories are identical, because there are no capital allowances, the situation dramatically changes when it comes of intangibles and machineries, which in the 2000 - 2004 were depreciated in an accelerated manner (EATR drops from 23.4% to 20.7%, respectively from 26.9% to 20.9%).

Also, the EATR tends to statutory tax rates in 1990 - 1994 period, when only straight-line depreciation was allowed. For the entire period from 1990 to 2010, both EMTR and EATR fall behind the statutory tax rates. Starting from 2005, when corporate tax drops to 16%, the EATR and EMTR have recorded the minimum levels of the entire period. The slight difference between 2005 - 2006 and 2007 - 2010 is due to the real estate tax rates which increased from 2007 (from 0.75% to 0.875% in nominal terms, respectively from 0.63% to 0.735% in effective terms).

4. Conclusions

This methodology of Devereux & Griffith has the benefit of highlighting the impact of taxation on investment projects, focusing on the main features of the tax system. From this point of view, it can be very useful in evaluating the impact of changes in the tax code on both EMTR and EATR of an investment project. The present paper extended the computation made by Devereux et al. (2008) to the whole period starting from 1990, based on the Romanian fiscal legislation. The cross-countries comparisons were translated into inter-temporal domestic comparison. The results showed that EMTR and EATR follow closely the statutory tax rates and reveals the impact of accelerated depreciation and that of changes in the useful life of assets, impact that is transmitted via the present values of tax savings resulted from capital allowances. Also, it showed the most heavily taxed are industrial buildings and

financial assets due to the reduced level of tax savings from depreciation. If FIFO method were to be used, the EMTR and EATR for inventories would equal those for financial assets. This methodology also offers a conceptual framework for evaluating the impact of future changes in the fiscal code serving as a pillar for assessing different fiscal incentives.

Note

(1) Annex A, available at:
http://ec.europa.eu/taxation_customs/resources/documents/annexes_en.pdf;

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COMPARATIVE STUDY ON DECENTRALIZATION OF PUBLIC FINANCES IN A NUMBER OF COUNTRIES IN TRANSITION FROM SOUTH-EASTERN EUROPE

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Abstract. *This paper is studying the degree of financial independence and decision of local authorities, in a number of transition countries in South-Eastern Europe. Our research identified the strengths and weaknesses of public finance reform, for each country, followed by a classification of decentralization in the analyzed area.*

Keywords: decentralization; reform; public finance; public revenue; public expenditure.

JEL Code: H700.
REL Code: 13G.

1. Introduction

The past 20 years, the countries in transition from Eastern and Central Europe were committed to a series of extensive reforms in their systems of governance, on the line of decentralizing the local public finances. The inheritance of socialism and central planning generated difficulties in implementing effectively the decentralization system, that to achieve its goals. This objective was and still is a challenge for many countries in transition since, in most cases, because of an extremely complicated establishment of the reform, all process was rushed, hazardated, with no transparency and consistency.

The global trend in taking responsibility of providing one part of public goods and services, from central to lower levels of government, is based in all cases on the principle of subsidiarity. Its application leads to a better use of resources in the economy but also to the efficiency growth in providing public goods and services. Any democratic government has to be associated with the need for decentralization, since it constitutes an important means to grow the participation in decision-making, thereby strengthening the responsibility of governing bodies and increasing transparency in all government actions.

2. Research status

The specific literature identifies many effects of decentralization of local public finances, such as economic growth, social welfare, efficiency in allocation of public resources, better control of inflation, the budget deficit (Shah, 1998, King Ma, 2001, Zou, Davoodi, 1998, Martinez-Vasquez, McNab, 2003, Akai, Sakata 2002, György, Câmpeanu, György, Miricescu, 2010). But, with all of these, we must understand that there are not only positive effects. Their occurrence is related to a good public management and an appropriate institutional framework, otherwise, it creates opportunities for corruption growth (Bardhan,

Mookherjee, 2006) or may greatly increase public spending and hence the central government deficit (DeMelo, 2000, Fornasari et al., 2000).

The paper by Bird et al. (1995) provided a comparative assessment seeing the phenomenon of decentralization in the early years of European countries transition to a market economy. A more recent study by Wetzel & Dunn (2001) examined the uneven progress on financial decentralization and the challenges for achieving an effective decentralization in transition countries of Central and Eastern Europe. The conclusions of these studies are that, in the early stages of transition, the national financial imbalances have widened and production collapsed, due to structural problems. The monetization of national deficits to sustain production and employment, the inflationary effects of price liberalization, all these have amplified the negative macroeconomic impact of the original structural dislocations (Tanzi, Tsibouris, 2000, Alan, Sundber, 2001, Valdivieso, 1998).

3. Research method

We will submit in our research the evolution of decentralization of local public finances in a number of countries in transition in Eastern and Central Europe, in comparison with the situation in our country. We chose these specific states taking in account their common historical past as the foundation for their transition to a market economy, in an equivalent economic, social and even political context. Our research involves the computation of some indicators that reveal the degree of decentralization of local public finances through the distribution of public revenues and expenditure between existing levels of government, and, of course, the interpretation of the results obtained. In addition, we also study local borrowing area, a complementary form to express and identify the local financial and decisional independence and we will underline the main areas of institutional reform and specific legislation for each state.

The countries we chose to be analyzed and classified, in terms of success for public finance decentralization, are Poland, Romania, Czech Republic, Hungary, Estonia, Lithuania, Latvia, Slovenia, Slovakia and Bulgaria.

4. Study results

A common feature of all countries examined is that the reform started from a highly centralized public finance system, with sub national government authorities which operate mainly as sub national administrative units, with little financial independence and financial responsibility. With common origins, in terms of economic structures and political systems, these countries have chosen different ways towards decentralization. The construction of an appropriate institutional framework for the decentralization process next to the coherent restructure of the system are considered the basis for a consistent progress in achieving macroeconomic and fiscal stability. Reforms, however, had a different nature and rhythm from one country to another. In general, countries from leading reformers group have progressed rapidly.

A primary condition for a successful decentralized governance type is the cooperation between the different levels of government, both politically and administratively. This operation requires transparency, regulation and information. Hungary, Poland, Czech Republic, Estonia and Latvia have already developed advisory institutions and bodies of intergovernmental cooperation. The lack of interaction and coordination between levels of government led to unrealistic regulations, to the proliferation of unfunded mandates, to inadequate monitoring and evaluation. The legislative shortcomings encouraged conflicts and friction in intergovernmental relations with adverse effects on public sector performance. Adjustments that occurred in the context of economic stabilization were the first phase of financial reform and objectives such as increasing the quality and efficiency of government,

the improvement of the institutional structure, the enhancement of transparency and accountability at all levels of government, including the intergovernmental relations evolutions, represented its first steps. The study here focuses not only to the way that public revenues and expenditures are allocated at central and local administration level but also looks for the extension of the decision-making autonomy to sub-national level. For example, the share of expenditure distributed on the levels of sub national government in total expenditures is an important measure of decentralization. But this index does not take into account the real decision-making authority of local governments. It is also not known whether local public spending is for its independent issues or for some clearly specified by the governmental law objectives, and if these last ones are funded by the higher administrative level or involves only local financial effort. In this regard, we will make below a brief analysis.

In our scientific approach we took into account the existing historical, ethnic, geographic, demographic features between the studied states. Countries with a larger population or a larger area (Poland, Estonia, Czech Republic) or those with ethnic diversity requires greater decentralization in comparison to the small and homogeneous states (Slovenia, Hungary). In same time, the integration into the European Union forced the reform in many cases and sometimes created a springboard for the decentralization of public services (Romania, Bulgaria).

In many transition countries the legal and institutional framework were subject to a series of revisions, reflecting more a political compromise rather than the need to apply principles or rules. Countries such as Hungary, the Czech Republic and Poland have pioneered reforms which had a considerable success in defining the roles of each level of government. In other countries, the distribution of functions to local governments remains ambiguous because of the significant legislative gaps (Bulgaria, Romania). The roles are often overlapping and poorly defined, so it's creating confusion about the intergovernmental and state-citizens interactions (for example, the same public services are distributed both by government agencies and local governments).

A serious problem of decentralization is how public revenue and expenditure are allocated between different levels of government. Meanwhile general objectives correspond to the principle of subsidiarity, there is a need for clarification in this area. Czech Republic, Hungary, Poland and Lithuania have developed a clear allocation of expenses, but many times the effectiveness in providing public goods and services is compromised because of excessive fragmentation of sub-national level. Many governments are mandating the public services to local governments, most often without adequate funding, so the objectives of national interest, such as education, health or social protection remain into the responsibility of local government (the Baltic's, Bulgaria). The lack of clarity and stability on the allocation of public expenditures has decreased the public accountability and its capacity to provide goods and services at every governance levels, undermining the efficiency of public spending and the welfare of citizens (Romania).

Table 1

The local share of public expenditure and total public expenditure (%)

Cantry/ Year	BG	CH	EE	LV	LT	HU	PL	RO	SI	SK
1995		17	27	22		23	23	13	15	13
1996		29	26	23		24	31	14	18	11
1997		23	27	25		25	22	12	17	10
1998	19	23	25	25		25	22	11	17	8
1999	19	22	24	25		25	34	10	18	7
2000	18	23	24	26	23	25	33	11	18	5
2001	16	23	29	28	27	25	32	18	18	7
2002	19	24	29	29	27	25	30	19	19	8

Cantry/ Year	BG	CH	EE	LV	LT	HU	PL	RO	SI	SK
2003	16	28	28	27	27	27	29	20	19	18
2004	17	28	28	28	27	26	30	21	19	17
2005	17	26	28	27	24	26	30	21	19	18
2006	19	27	28	28	25	25	31	24	20	18
2007	17	26	28	30	24	23	32	27	20	18
2008	20	27	28	31	25	23	33	26	21	16
2009	20	27	25	29	24	24	34	25	21	17

Source: calculations made by authors, based on data from Eurostat, http://epp.eurostat.ec.europa.eu

Until 1999 and 2000, the public expenses were down compared to the total national public spending for Romania, Slovakia and Bulgaria. The further growth was stronger and it was due to the aggressive reforms in these countries (Romania-1998, Bulgaria-1999 and Slovakia-2001)[(1)]. For the other countries we observed a constant ratio, due to GDP growth, or even a slight increase, such in Poland or the Czech Republic cases, in the first period, until 2001. Recent years, the share of local public expenditure in total public spending surpasses, with few exceptions, the 20%. We may remark top countries such as Poland (between 22% and 34%), Czech Republic (between 17% and 27%), Estonia, Latvia and Lithuania. A modest percentage and evolution are registered by Romania, with a significant revival in the last period (from 11% to 26%), Slovakia (from 8% to 17%) and Bulgaria

Table 2

The share of local government revenue in total government revenue (%)

GEO/ TIME	BG	CH	EE	LV	LT	HU	PO	RO	SI	SL
1995		28	25	23		28	23	14	18	7
1996		37	25	29		27	32	16	18	9
1997		23	25	26		28	22	14	19	8
1998	18	27	24	26		29	22	12	18	7
1999	18	24	25	26		28	34	12	19	7
2000	18	24	22	27	25	26	34	14	20	8
2001	16	25	27	27	29	28	35	20	20	8
2002	19	27	27	28	29	28	33	19	19	11
2003	16	31	25	28	28	31	33	22	20	19
2004	17	29	26	29	28	29	35	21	20	20
2005	15	29	26	26	25	29	33	22	20	19
2006	18	28	25	27	24	28	33	25	20	19
2007	17	28	25	28	24	26	33	28	20	18
2008	18	28	28	31	27	26	35	27	20	17
2009	20	29	25	32	30	25	37	29	22	19

Source: calculations made by authors based on data from Eurostat, http://epp.eurostat.ec.europa.eu

Slovakia, Bulgaria and even Romania register modest share of local government revenues in total government revenues. But important changes occur after 2001, when the tax law (Romania 2003) or local government finance legislation (Bulgaria 2001, Slovakia 2001) radically changes. After a period of gradual growth, the ratio of total local government revenue remains constant, around 15%, in the general context of increasing public revenue in absolute size. It should be noted again the special position of Poland, whose local revenues generally exceed 30% of the total ones. We identified very good results for the Czech Republic, Lithuania, Latvia and Hungary, situations in which the weights have remained somewhat steady in the 20-25% range.

Supporting the relevance of the above results and interpretations, we emphasize the favourable statistical results on the evolution of government revenue and expenditures throughout the period considered.(2) For reasons of comparability, we chose the expression of national income and total expenditure in euro (or ECU). Public income and spending level register a special situation in Lithuania, both nationally and locally. This country has a really favoured position in terms of local budgetary resources, because the public revenues that local governments have at their disposal exceed 25% of the total national revenue and the locally expenditure represents over 23% of the total national expenditure in all cases analyzed. A particularly good situation have the Czech Republic, Hungary and Romania, whose government revenues have increased by a certain constant interval. In 2009, as expected, because of the national and international aggressive economic problems, the public revenues have embarked on a regressive trend, with restrictions in public spending.

The dimension of decentralization can be identified by analyzing the way that the public needs are answered by national or local public services. The analysis is focused on the economic classification of public expenditure.(3) This way we can find the most important local public services, identifying also which are the decentralized/deconcentrated areas of public interest. The result was that in the majority of the countries the local expenditures for education, culture, infrastructure, public utilities and environmental protection have an overwhelming share of total public expenditure in the same category, suggesting that they are in local responsibility, so that services are decentralized. The shares were modest seeing the general, economic and social protection public services. Public health services have a special situation. If countries such as Slovakia, Czech Republic, Romania, local accountability on this expenditure is very low but in Poland, Estonia and Hungary, local public health expenditure are consistent.

A solid and effective decentralization requires a strong correlation between responsibility and decision. The local/regional governance effective autonomy is limited in most transition countries, as central government agencies impose certain rules and regulations established by the Government, strongly restricting local government authority. The mandates have a coercive role because are sometimes inadequate or even do not have appropriate funding. Thus, local budgets are excessively burdened (Bulgaria), and residual costs from its own revenues for other services are reduced significantly, creating regional disparities. In contrast, in Poland, Czech Republic, Estonia and Latvia, local governments enjoy a greater level of flexibility in providing public services, with the right to determine the appropriate ways and methods to make their job, according to the local population needs and to their available financial resources. The tasks are mandated by law, with the allocation of appropriate funds from central government. But there are exceptions that restrict local budgetary autonomy, such as personnel and pay management in the public domain, for which the decision is taken centrally.

The governments of the analysed states are using, the vast majority, the conditional grants, answer to these local public spending. The grants are completed by complement sources such balance amounts and own local revenues. The real revenue autonomy at the local/regional level, meaning the right to set tax rates, taxes or tax base, all specific to the particular economic context but also depending on needs, represents a real challenge. Only the countries with an advanced reform provided a relative autonomy of local government revenue, but the central government implication in their finance is still a necessity. Czech Republic, Slovakia, Poland, Hungary and have their own income, collected locally, generally exceeding 30% of disposable income. The most consistent part of their local revenue is brought by property taxes (except the Czech Republic and Slovakia), but with a negligible share in total local revenue.

We have to note progress seeing the increasing transparency and predictability of national public revenue distribution between levels of government resulting from the adoption of uniform and stable rates of sharing quota. In some countries, the income distribution has a

statutory basis. The formal basis of distribution is established by the central government, which identifies for each administrative territorial a minimum spending requirement. This has led to variable, year to year, shared quotas, which are not completed transparently by equalization transfers to fill gaps in local budgets. The lack of well-defined division of local government generated some initiatives of local governance to hide revenues raised locally through extra-budgetary funds or even diminished the interest in collecting local taxes, because of the simple reason that the deficit will be covered by balancing funds. Otherwise, the central governments "punish" the communities characterized by high fiscal capacity and by good capabilities to support themselves financially by reducing the shared revenues (Bulgaria).

In the analyzed countries, the shared taxes exceed 50% of local revenues.(4) Poland and Hungary have the lowest share of national taxes. In most transition countries, the income tax is the most important shared income, the consumption taxes being less used. In the local own revenue, property taxes are still small in volume, not being fully used yet, because of the poor collection possibilities and the absence of local decisional autonomy in this regard.

In most of the countries (Slovakia, Poland, Hungary, Baltic States) the balancing transfers between different levels of government remain discretionary. Most of them are not conditional but determined ad-hoc by the central government, in the same time with the annual budget, by negotiation. Romania and Bulgaria adopted a transparent formula system. However, the efficiency of distribution of the balance amounts is poor because the indexes used are not fully representative (for example, it takes in account the locality area instead its population). Along with the expenditure needs and fiscal capacity, the fiscal deficit has its big importance (Bulgaria, Estonia), creating negative incentives on revenue mobilization. Sometimes, even there are set some exactly distribution formula, at the end of the year there are supplementary transfers that were negotiated between the levels of public administration, which gives relaxation to budget constraints, with negative impact on the efficiency and economy in spending public money.

Another way to measure decentralization refers to the freedom and ability of local governments to borrow. The sources are the Central Government (100% in Bulgaria), national or regional financial institutions, domestic and international capital markets (bond issue). In most countries we examined, the local borrowing level remains low. Municipal credit market is still underdeveloped due to the failure of municipalities in terms of gaining their credibility in the market. The limited income, the limited autonomy on local public spending but also the specific destinations imposed for local borrowing, generally lead to the dependence on central government. Countries in which municipalities/regions demonstrated some financial development have used the national and international capital markets (Czech Republic, Poland, Hungary, Estonia, Romania.

While in Hungary, Czech Republic and Poland the liberalisation of domestic loans was accompanied by an appropriate regulatory and institutional framework, which established a specialized market discipline, in countries such as Estonia and Romania there were adopted legislative limits on local government debt and budget deficit of the regions/localities. In all cases, the absence of control procedures or even their ignorance as well as the lack of some other specific sanctions led to an over-indebtedness of the municipalities, a base for a potential future bankruptcy. The risk is enormous, considering that there were established no legal procedures for public bankruptcy (excepting Hungary).

5. Conclusions

Therefore, the decentralization of the analyzed transition states is in full progress. Poland, Hungary, Czech and Baltic countries are characterized by consistent and coherent reforms and by the degree of local autonomy conferred to local government. In addition, the national economic growth was a strong point that came to help to gain a relatively high degree of local financial independence. Most public services are provided by local government.

Slovenia and Slovakia are on a lower tier, but not for decisional independence reasons but in terms of financial allocations for public services provided through local authorities. Romania and Bulgaria are the least developed in terms of decentralization. The main reason is the extremely restricted freedom of decision. Local public finance legislation greatly restricts the freedom of local government. We found big problems in the expenditure repartition system but also in the local power to collect its own revenue and to use them as it wants. Also, there are confusions concerning the responsibilities for providing public services, because of the legislative incoherence.

Notes

(1) See Fiscal Design across Levels of Government, Year 2000 Surveys, Country Reports, www.oecd.org

(2),(3) computations made by the authors, using the data offered by Eurostat, http://epp.eurostat.ec.europa.eu

(4) According Fiscal Decentralisation in EU Applicant States and Selected EU Member States, Executive Summaries on EU Applicant States and EU Selected Member States, work paper prepared for the Workshop on "Decentralisation: Trends, Perspective and Issues at the Threshold of EU Enlargement", Denmark, 2002

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DESCENTRALIZATION STRATEGIES FOR PUBLIC SERVICES WITHIN EU MEMBER STATES – EMPIRICAL STUDY*

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Abstract. *Decentralization is an opportunity to provide public services depending on the citizens'needs and taking into consideration the financial constraints of the local budgets. The real convergence involves a similarity of the decentralization degree for public services between the countries wishing to join and those states which are already members of the eurozone. The purpose of this study is to analyze the decentralization results for public services provided by Romanian local authorities compared with the results of EU Member States and to identify decentralization strategies appropriate for our country.*

Keywords: local financial management; decentralization strategies; local budgets; real convergence, public services.

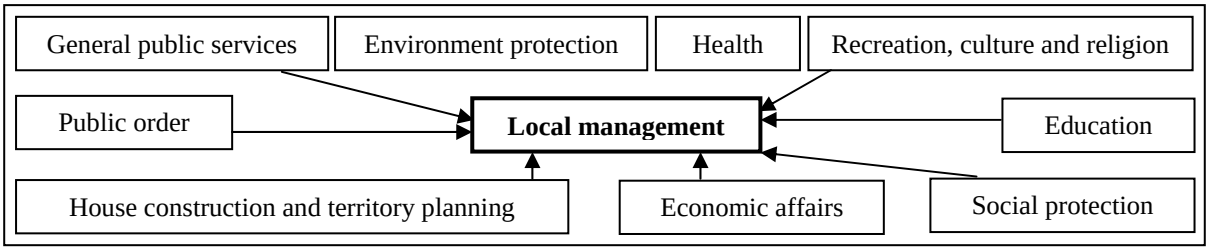
JEL Codes: H41, H75, H76.
REL Codes: 8K, 13B, 13G.

1. Introduction

In order to affiliate the eurozone, the EU member states are obliged to fulfil both the nominal and legal convergence criteria but the real convergence criteria. The nominal and legal convergence criteria are compulsory as they are required by the Maastricht Treaty. Therefore the eurozone affiliation determine higher achievements than the expenditures, it should that the states which desire to implement the European currency to have a real convergence with the states that are already members of the eurozone. In addition to the real convergence standard criteria, which refers to: the GDP per capita, the openness of the country's economy, the labor productivity, etc., we think that an important characteristic is the real convergence of public sector. Thus, the countries wishing to affiliate the eurozone should have a decentralization degree for public services closed to the Member States.

In this paper we will study mainly the supply at local level of the following goods and services: (i) general public services, (ii) public order, (iii) economic affairs, (iv) environment protection, (v) house construction and territory planning, (vi) health, (vii) recreation, culture and religion, (viii) education and (ix) social protection.

* This work was supported by CNCSIS–UEFISCSU, project number PNII–IDEI 1780/2008.



Sursa: our own findings.

Figure 1. *Providing locally the public goods and services*

The paper is divided in five chapters, as it follows: in the second chapter, we have examined the studies in the public services decentralization, in the third chapter we have studied the local budget revenue and expenditure profile in Romania and in the EU, in the fourth chapter, we have compared the decentralization process results in Romania with other EU countries and in the fifth chapter we have outlined conclusions of our study.

2. Studies on public services decentralization

In the last two decades there was a real interest in most countries to decentralize public services provided by central and local governments. The responsibilities transfer carried out by the decentralization process is widespread, as both developed and emerging countries challenge to decrease governments' monopoly on decision-making power. In the western world, decentralization is an effective tool for the government reorganization in order to provide public goods and services in an efficient approach in the "post-welfare state" era Bennett (1990) and Wildasin (1997). Emerging countries are turning to decentralization in order to escape from the traps of: ineffective and inefficient governance, macroeconomic instability, and inadequate economic growth (Bird, Vaillancourt, 1999). Throughout the Central and Eastern European countries, decentralization process can be viewed as the direct result of the transition from socialist system to market economy and democracy (Bird, Ebel and Wallich, 1995). Văcărel, Bistriceanu, Bercea, Anghelache, Moşteanu, Bodnar, Georgescu, (2003, p. 573), Moşteanu, Lăcătuş (2009), indicate that *the division between local and central finance (...) is determined by effectiveness considerations. Local finances meet the requirements of public benefits in the region better and more effectively than than central finances.* In Latin America, at the origin of starting the decentralization process was the political pressure from the people for democratization Rojas (1999). In Africa, decentralization has served as a path for national unity World Bank (1999).

We believe that the diversity of factors that have contributed to the increased interest for decentralization reflects institutional differences between the countries. Even if in most contemporary states there is a propensity to decentralize the provision of goods and public services, however certain areas as: external relations, justice, national defense, etc. are managed centrally, because they are of national interest.

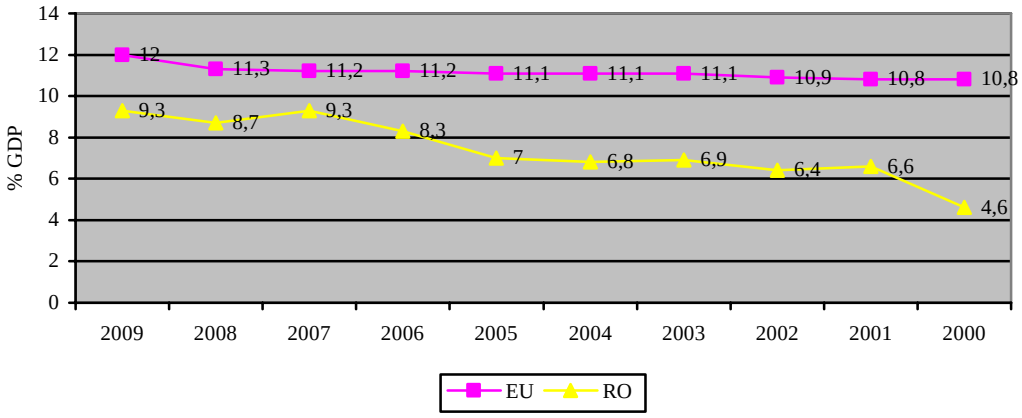
In a decentralized taxation system, the sub-national public policies may differ from those of central government, in order to reflect the preferences of their residents. Furthermore, fiscal decentralization brings government closer to the people and a representative government works best when it is closer to the people (Stigler, 1957).

3. The profile of the local budgets revenue and expenditure

A research method on the public services decentralization and their funding is the analysis of local budgets (LB)' income and expenditure in GDP ratio and in general consolidated budget (GCB) ratio for Romania compared to the average of these indicators for the EU Member States.

3.1. The profile of the local budgets revenue

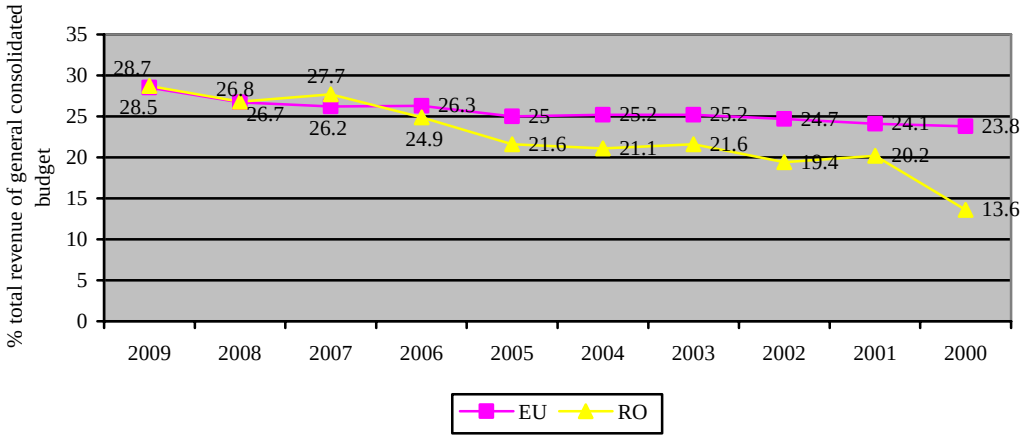
The decentralization of public goods and services can be effective only if local authorities have satisfactory resources. In Romania, as Miricescu (2009, p. 146) highlighted *between 2003 and 2009 the local budgets revenues came in descending order from: (i) the VAT amounts, (ii) the income tax shares and amounts, (iii) their own revenues and (iv) subsidies.*



Source: Our own findings based on data from EUROSTAT and Ministry of Public Finance.

Figure 2. *The evolution of LB income share during 2000-2009 (% of GDP)*

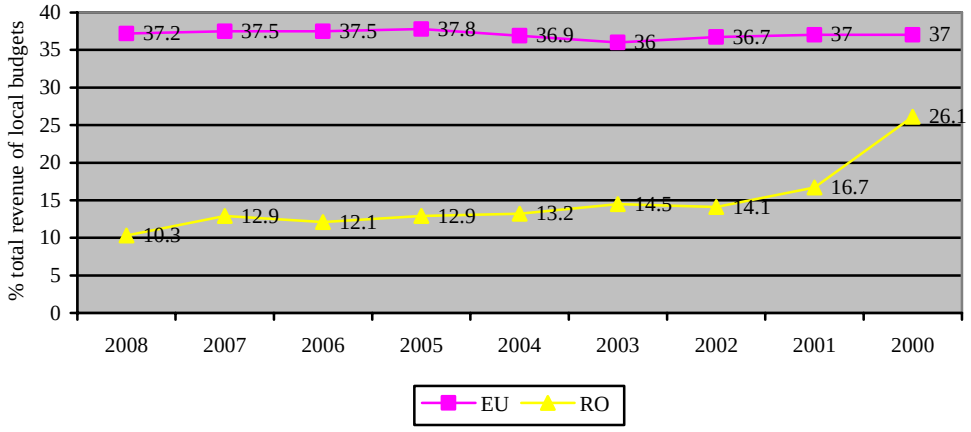
The LB income share of GDP shows how much of the added value created during the year are the revenues received by local authorities. In Romania, the share of local budget revenues in GDP had an upward trend, from a minimum of 4.6% in 2000 to a maximum of 9.3% in 2007 and 2009. In the EU, the index increased slightly, from a minimum of 10.8% in 2000 to a maximum of 12% in 2009. During this period, Romania has made a genuine progress in the real convergence domain.



Source: Our own findings based on data from EUROSTAT and Ministry of Public Finance.

Figure 3. *The evolution of LB revenue share during 2000-2009 (% of GCB revenues)*

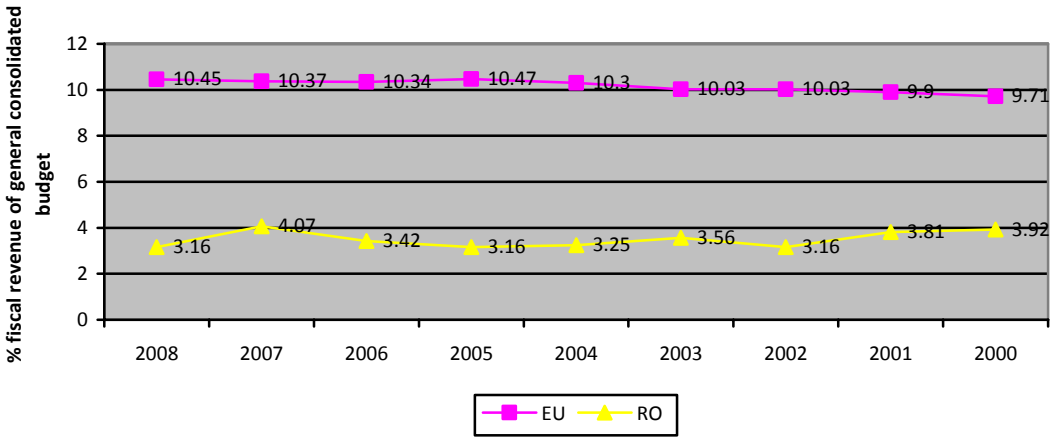
In Romania, the ratio of LB revenue to GCB revenues had an increasing trend, from a minimum of 13.6% in 2000 to a maximum of 28.7% in 2009. In the EU, the index rose a little, from a minimum of 23.8% in 2000 to a maximum of 28.5% in 2009. We believe that the revenue managed by local public authorities have an increasing significance both in Romania and in the EU and in 2008 and in 2009 the two graphs are identical.



Source: Our own findings based on data from EUROSTAT and Ministry of Public Finance.

Figure 4. *The evolution of fiscal revenues share during 2000-2008 (% of LB revenues)*

In Romania, the share of fiscal revenue in LB revenues had a downward trend, from a peak of 26.1% in 2000 to a minimum of 10.3% in 2008. In the EU, the index has fluctuated around 37%. We consider that between 2000 and 2008 Romania hadn't a real convergence on this index, which recorded a strong deterioration. Tax revenues of LB are mainly obtained from local taxes. In order to reverse this trend, public authorities have taken some measures as highlighted Miricescu (2010, p. 22) starting from January 1, 2010, *the increase percentage of taxable values on buildings owned by individuals ranged between 20% and 20.6% (...), which has caused a corresponding increase in taxes owed by taxpayers.* From July 1, 2010 there have been an increase in the tax raise rates for buildings owned by individuals outside the residence(1) and there have been doubled the tax for the car with a cylinder capacity exceeding 2000 cm^3.



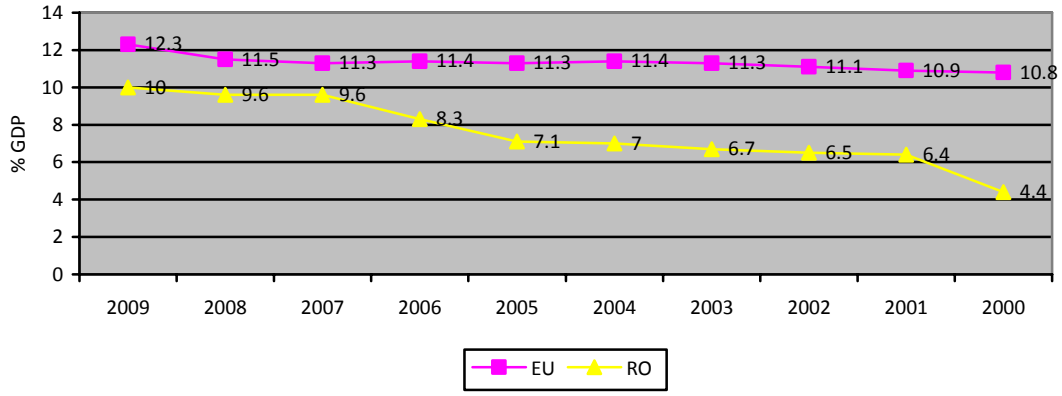
Source: Our own findings based on data from EUROSTAT and Ministry of Public Finance.

Figure 5. *The evolution of the LB fiscal revenues share (% of GCB fiscal revenues)*

In Romania, the share of LB fiscal revenues in the GCB fiscal revenues ranged from 3.92% in 2000 and 3.16% in 2008. In the EU, the index ascended slightly, from a minimum of 9.71% in 2000 to 10.45% in 2008. The tax authorities should intensify their efforts to increase the local tax collection, including through measures for enforcement of taxpayers having unpaid debts.

3.2. The profile of the local budgets expenditure

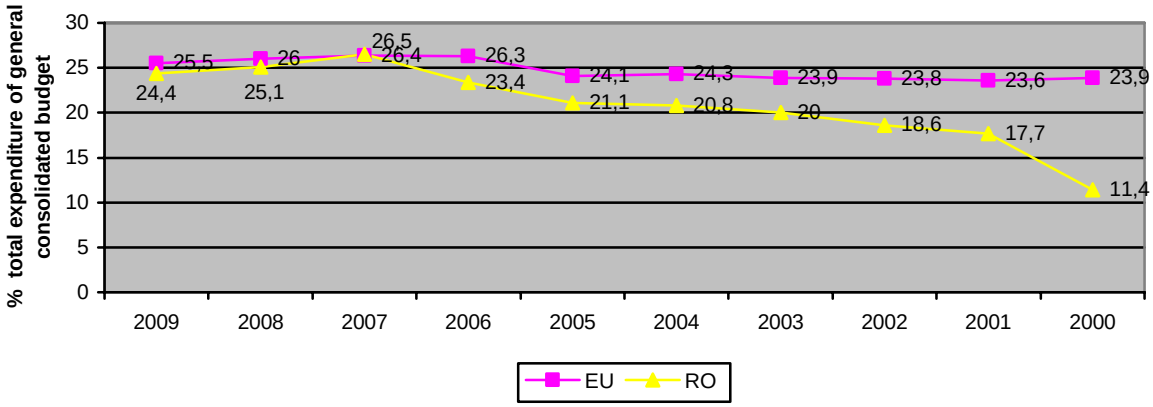
Efficient and transparent management of public funds represents a requirement for local authorities in the EU Member States, because as declare Văcărel, Bistriceanu, Bercea, Anghelache, Mosteanu, Bodnar, Georgescu (2003, p. 35), *public finances are utilized to meet the general needs of society.*



Source: Our own findings based on data from EUROSTAT and Ministry of Public Finance.

Figure 6. *The evolution of LB expenditure share during 2000-2009 (% of GDP)*

The LB expenditure ratio to GDP shows how much of the value added created during a year is represented by the expenditure sustained by the local authorities. In Romania, the share of local budgets expenditure in GDP had an ascendant trend, from a minimum of 4.4% in 2000 to a maximum of 10% in 2009. In the EU, the index rose slightly, from a minimum of 10.8% in 2000 to a maximum of 12.3% in 2009. We notice that Romania had a real convergence in terms of LB expenditure ratio to GDP, which emphasize the magnitude of descentralization for public services.



Source: Our own findings based on data from EUROSTAT and Ministry of Public Finance.

Figure 7. *The evolution of LB expenditure share during 2000 - 2009 (% of GCB expenditure)*

In Romania, the share of LB expenditure in GCB revenues had an upward trend, from a minimum of 11.4% in 2000 and a maximum of 26.5% in 2007, reaching in 2009 to 24.4%. In the EU, the index rose slightly, from a minimum of 23.9% in 2000 and a maximum of 26.4% in 2007, reaching in 2009 to 25.5%. The local authorities expenditure have an increasing significance both in Romania and in the EU, and in 2007, 2008 and 2009 the two graphs are identical.

In order to have a successful management of public money, Mosteanu and Lăcătuş (2009, p. 18) consider that *the opportunities for collaboration between local entities, without involving the relationship of subordination, give chances to each local government to answer to the needs of the communities.*

Given that the local public institutions have sufficient financial resources compared to the social needs to be satisfied it is required a requirements prioritization for an efficient spending of public money.

4. Comparative study Romania – European Union

Câmpeanu, Gyorgy (2010) showed that during 2000 and 2008 Romania had a medium decentralization degree of 30.2% and an medium financial autonomy degree of only 14.7%.

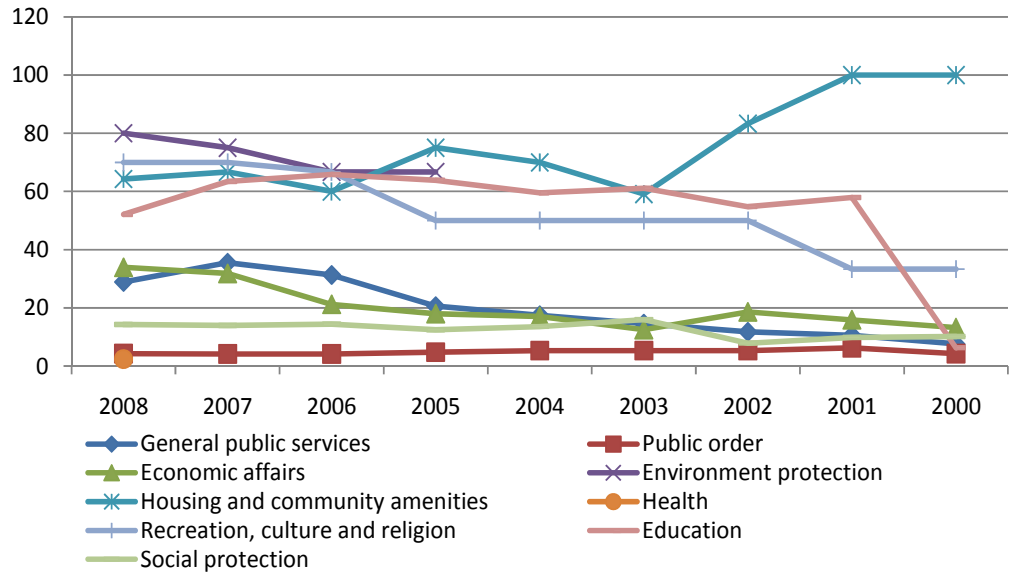
Table 1

The decentralization results in Romania compared to the EU

Indicators	Romania (%)	European Union (%)	Index
Average degree of decentralization (2000-2008)			
total	*30.2*	*42.2*	*0.7*
General public services	19.8	25.1	0.8
Public order	4.9	27.8	0.2
Economic affairs	20.2	33.2	0.6
Environment protection	32	79.1	0.4
Housing and community amenities	75.4	76.9	1.0
Health	0.3	21.7	0.0
Recreation, culture and religion	52.6	62.3	0.8
Education	53.9	41.3	1.3
Social protection	12.5	12.5	1.0
Average degree of autonomy (2000-2008)	*14.7*	*37.1*	*0.4*

Source: Our own findings based on data from EUROSTAT and Ministry of Public Finance.

Analyzing the decentralization results in Romania according to the functional classification(2), we consider that the highest decentralization degree is for house construction and territory planning –75.4 and the lowest decentralization degree is for health care system – 0.3%. However, as stated (Gyorgy, Campeanu, Gyorgy and Miricescu (2010, p. 177), *starting with 1st of July 2010, the second stage of the hospitals decentralization takes place-373 hospitals will be decentralized by transferring their management from central at the local level.* In the EU, the highest decentralization degree is for environment protection –79.1% and the lowest decentralization degree is for social protection –12.5%. Romania has significant gaps regarding decentralization toward the EU average in the following branches: health, public order, environment protection and economic affairs. In the near future, the public policy makers' effort to improve de decentralization should be focussed in particular to the three precise sectors.



Source: Our own findings based on data from Ministry of Public Finance.

Figure 8. *The decentralization degree for public services in Romania (%)*

Over the last decade, for most public services' decentralization Romania has made outstanding progress, excepting the house construction and territory planning, where because of the high expenditure, some actions have started to be implemented at the central level.

5. Conclusions and recommendations

In the context of Romanian affiliation to eurozone, the decentralization of public services is a real convergence criteria, where Romania has made substantial progress over the last decade. Thus, the LB revenue and expenditure in GDP has improved considerably, and the LB revenue and expenditure in the GCB revenue and expenditure in Romania match with the average indexes in the EU Member States. However, we notice the fiscal revenue reduced weight in the LB revenue, in the context of local authorities' efforts to increase the tax collection. Having the goal to increase the local financial resources, we recommend as evaluation criteria for public managers an appropriate self-financing and effectiveness in the public money management.

Note

(1) The tax owed by individuals who have more than one building increase by: (i) 65% for the first building beside the residence, (ii) 150% for the second building beside the residence and (iii) 300% for the third building beside the residence.

(2) Depending on the activity' branches to which public funds are paid.

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THE ANALYSIS OF EXTERNAL AND INTERNAL PUBLIC DEBT IN ROMANIA

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Abstract. *The present scientific study aims at analyzing the total public debt of Romania. Under the actual circumstances, we have considered necessary studying the relation between the internal and the external public debt, which is influenced by objective, subjective and also political factors. At the same time, in this research work, the authors begin by the structure and the service of the internal public debt, then the analysis continues with the presentation of the structure and service of the external public debt. The study ends with the resulting conclusions.*

Keywords: public debt; internal and external public debt; the service of the internal and external public debt.

JEL Codes: H00, H5, H6.
REL Codes: 13A, 13K.

1. Introduction

Most of the present public budgets, belonging to either developped countries, countries in transition or developping countries, are elaborated and finalized with deficits.

The easiest and most effective methods to clasify, monitor and regulate the public debt is to distinguish between two forms: the internal public debt and the external public debt.

The connection between the internal and the external public debt is influenced both by objective and by subjective factors. The objective factors are represented by the level of development of the economy in discussion and also by the qualitative and quantitative differentiation of the material resources owned by each state.

An important issue, involving political, economic, financial and exchange consequences is the decision to cover the public budget deficit with loans taken from the internal market, the external market or both of them.

The relation between the internal and external public debt can also be influenced by political factors such as large public investment projects, implicating advanced technology importations. Still, irrespective of the choosed loan type (internal or external), we must draw a detailed analysis in order tro establish the effects a certain loan will have on the budget and on the economic plan, while taking into account the external payment balance and the exchange risks that might occur.

Besides the limitations of the public debt based on regulatory or institutional norms, we can also deal with financial limitations, aiming at comparing the service of the public debt with certain certain budget positions, that is the gross fiscal revenues.

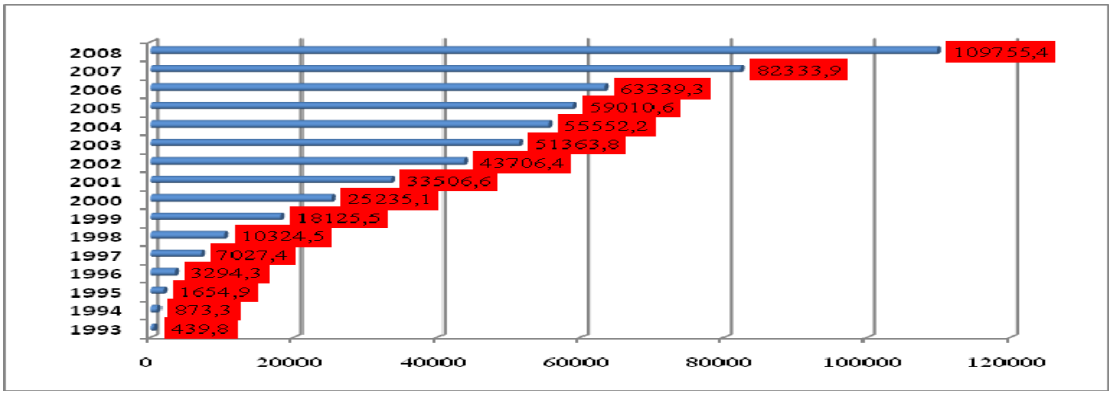
The aim of the present research is to analyze the internal and the external public debt starting from the dimension and the evolution of the total public debt.

The period of the financial crisis is not taken into account since the objective of the study is to investigate a temporal horizon estimated as normal, not affected by shocks which might disturb the evolution of the considered indicators and variables.

2. The evolution of the total public debt

The public debt is a concept involving a complex mechanism, which starts functioning once the capital and financial resource needs are determined, up to stages such as the actual contraction of the debt, the prudential monitoring of the debt level, establishing a payment schedule which does not affect the economic development and, implicitly, the actual debt reimbursement.

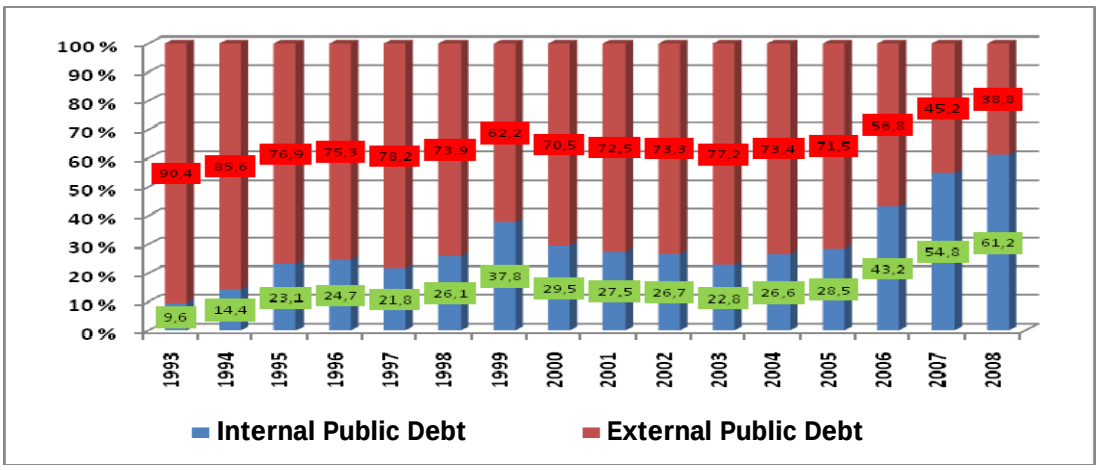
The overview analysis of the total public debt on its two components, the internal public debt and the external public debt, concerning both their evolution (Figure 1) and structure (Figure 2), shows that the largest share of the total public debt comes from external sources.



Source: Realized by the authors of the present article based on data taken from the Ministry of Public Finance.

Figure 1. *The evolution of the total public debt of Romania between 1993 and 2008 (millions Lei)*

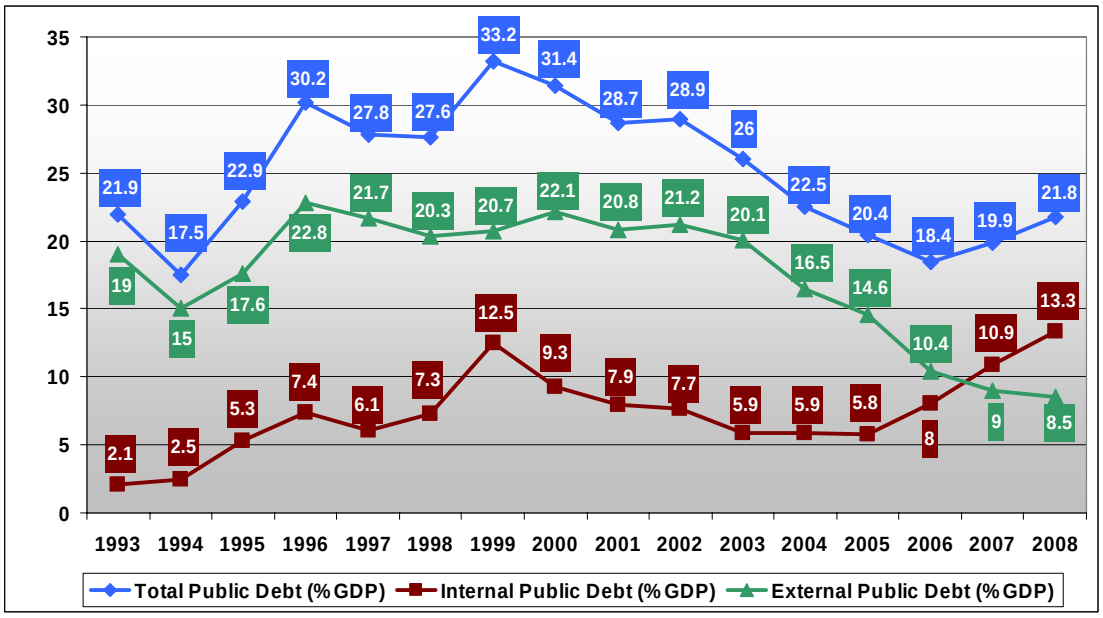
Therefore, between 1993 and 2005, the external public debt represented between 70% and 90% of the total public debt. Our country's decision to retort to external loans can be explicable, taking into account the low development level of the internal capital market, as well as the insignificant evolution of the external trade, increasing the financial dependency upon foreign sources. Starting from 2006, the Romanian state reoriented towards the internal capital market, thus the total public debt structure modified, in the sense that the internal public debt became dominant. As a result, in 2008, the external public debt represented only 38.8% of the total public debt.



Source: Realized by the authors of the present article based on data taken from the Ministry of Public Finance.

Figure 2. *The structure of the total public debt in Romania between 1993 and 2008*

Another dimension of the analysis of public debt involves reporting it to the Gross Domestic Product (GDP). The balance between them represents, in fact, the country's level of indebtedness. In Romania, during the analyzed period, the level of indebtedness ranked between 21.9% and 21.8%, at the beginning and, respectively, at the end of the period, reaching a maximal level of 33.2% in 1999. The evolution of total public debt and its components, reported to the GDP is illustrated in Figure 3.



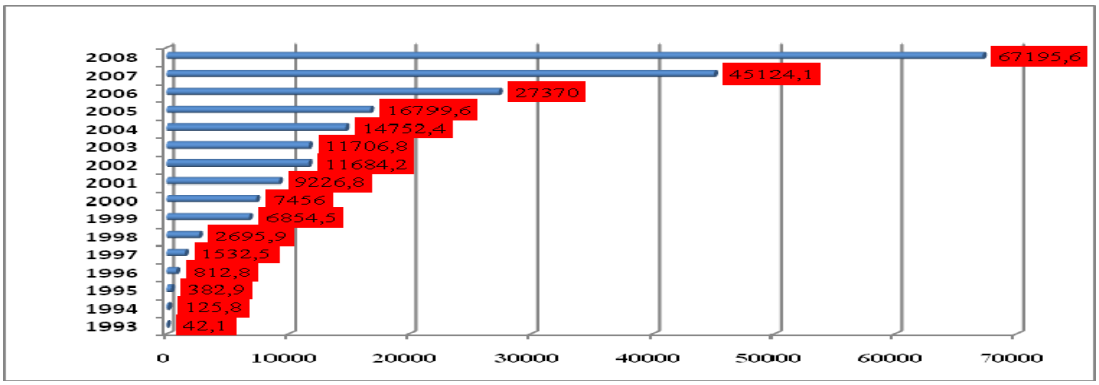
Source: Realized by the authors of the present article based on data taken from the Ministry of Public Finance.

Figure 3. *The evolution of the total public debt and its components in Romania (% GDP) between 1993 and 2008*

One can notice that the internal public debt, as a fraction of the GDP, rose from 2.1% in 1993 to 13.3% in 2008, this also representing the maximal level during the analyzed period and the external public debt reported to the GDP fell from 19% in 1993 to 8.5% in 2008.

3. The internal public debt

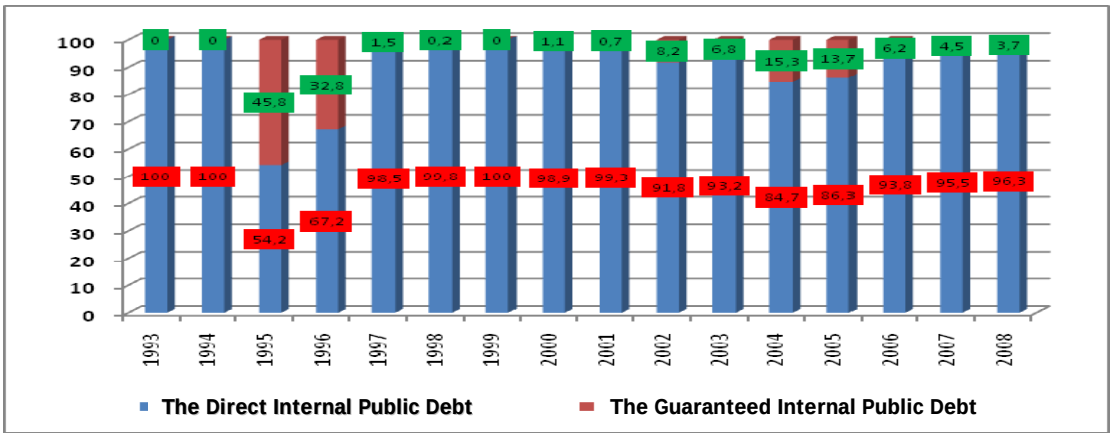
While analyzing the dimension and evolution of the internal public debt (Figure 4), we can mention that, between 1993 and 1996, the internal public debt stock was low. What is the explanation? It is only in 1992 that the Romanian state began to resort to the internal market in order to obtain the necessary resources to finance its budget deficit. But during that period, the internal capital market was practically inexistent, therefore there were no regulated techniques and instruments for contracting debt. Starting from 1997 and up to 2008, the internal public debt increased significantly, thus getting to represent an important share of the total public debt and surpassing the level of the external public debt between 2006 and 2008 (it rose from 9.6% of the total public debt in 1993 to 61.2% in 2008). The main cause of this situation was the regulation of the state-owned share market and of the capital market, as, beginning with 1996, the Romanian state gradually turned to the existent internal resources.



Source: Realized by the authors of the present article based on data taken from the Ministry of Public Finance.

Figure 4. The evolution of the Romanian internal public debt between 1993 and 2008 (millions Lei)

The structure of the internal public debt distinguishes between direct and guaranteed debt. The evolution of the direct and guaranteed internal public debt is presented below (Figure 5).

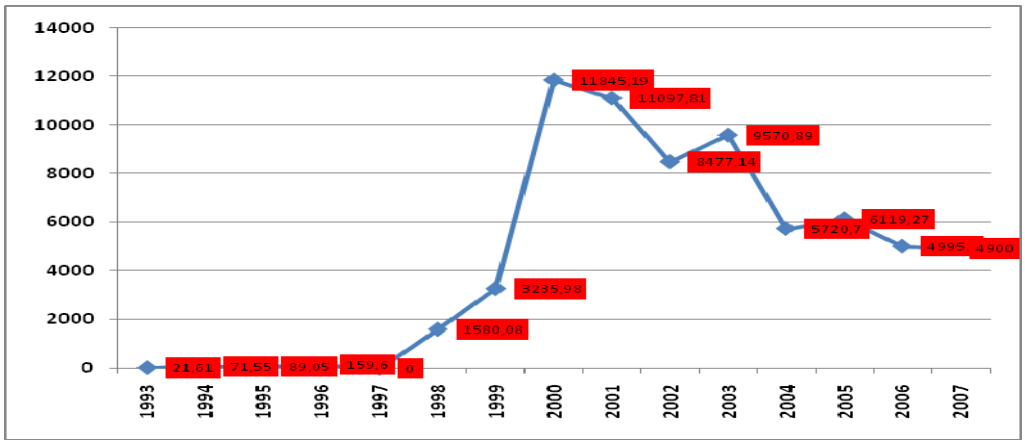


Source: Realized by the authors of the present article based on data taken from the Ministry of Public Finance.

Figure 5. *The structure of the Romanian internal public debt between 1993 and 2008*

Therefore, it becomes obvious that the share of the total internal public debt representing the direct internal public debt is larger than the share representing the guaranteed internal public debt. This situation was determined by the fact that the direct internal public debt was generated by the budgetary deficit, as well as by the decision to finance debts taken over by the state, based on special laws and regulations.

The analysis of the internal public debt can be realized by means of an indicator known as „the internal public debt service" (IPDS). This indicator reflects the volume of financial public resources alloted to cover the internal obligations during a financial exercise.



Source: Realized by the authors of the present article based on data taken from the Ministry of Public Finance.

Figure 6. *The evolution of the Romanian internal public debt service between 1997 and 2003 (millions Lei)*

Out of Figure 6, one can notice that the highest values of the internal public debt service were registered after 1997, in 2000 and 2001, when impressive amounts were alloted in comparison with the rest of the reporting period. After 2001, the value of IPDS gradually decreased until 2007. Starting from 2008, the IPDS also included the debt service destined to be contracted in order to cover the deficit for the following years and also the amounts necessary for refinancing the public debt, in conformity with the laws in force. The projection of the internal public debt service in Romania between 2008 and 2011 is presented in Table 1.

Table 1

The projection of the internal public debt service between 2008 and 2011

Years	2008	2009	2010	2011
IPDS(billions Lei)	6,5	50,8	32,7	39,1

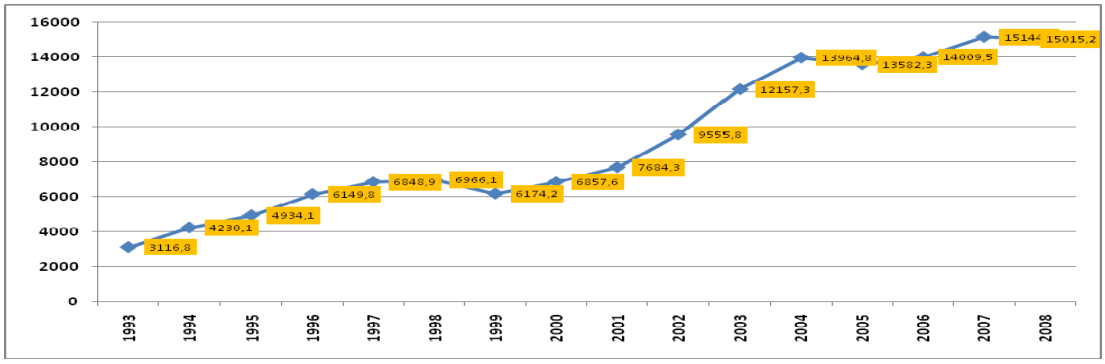
Source: Realized by the authors of the present article based on data taken from the Ministry of Public Finance.

The volume of the internal public debt service between 2008 and 2011 increased substantially in 2009, reaching a level 10 times higher than the value registered in 2007.

4. The external public debt

An ineffective use of the external loans can lead to a limitation of the acces to finances on the external market, and can even cause a debt crisis.

The analysis of the external public debt concerns the effective external public debt, registered in our country during the respective period (Figure 7).



Source: Realized by the authors of the present article based on data taken from the Ministry of Public Finance.

Figure 7. The evolution of the external public debt in Romania between 1993 and 2008 (millions USD)

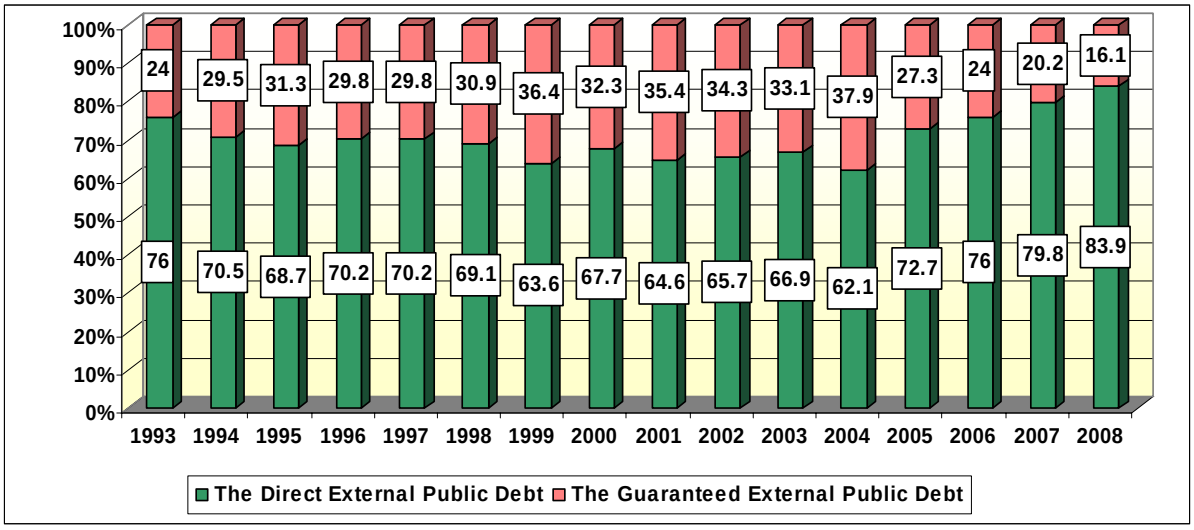
One can notice that the external public debt of our country increased substantially in the analyzed period (Figure 7). In absolute figures, the pace of this increase was relatively constant between 1993 and 1998. In 1999, the debt volume decreased, due to an extremely high level of the external public debt service, for which the state made a considerable financial effort. Also, 1999 was an year marked by an unfavorable evolution of the economy; as a consequence, the International Monetary Fund and the World Bank refused to sign new agreements with Romania or to deblock new portions of the existing ones.

Still, Romania managed to avoid entering into payment default as to the external public debt service, by applying a series of strict measures to regulate the external payment balance. The following year, the external public debt started growing progressively and in 2008 it reached a level twice higher than in 2000.

The Romanian external public debt had the following destinations: sustaining the external payment balance; consolidating the exchange reserves of the state; implementing investment projects, financing the external trade, developping some economic fields considered as priorities; implementing sectorial reformation measures; financing the budgetary deficit and refinancing the debt.

Depending of the type of debtors, the external public debt can be direct or guaranteed. The significant component of the external public debt is represented by the direct debt, which, in absolute figures, rose to 12,607.77 millions USD at the end of 2008, a value 5 times higher than the one registered in 1993 (2,369.2 millions USD).

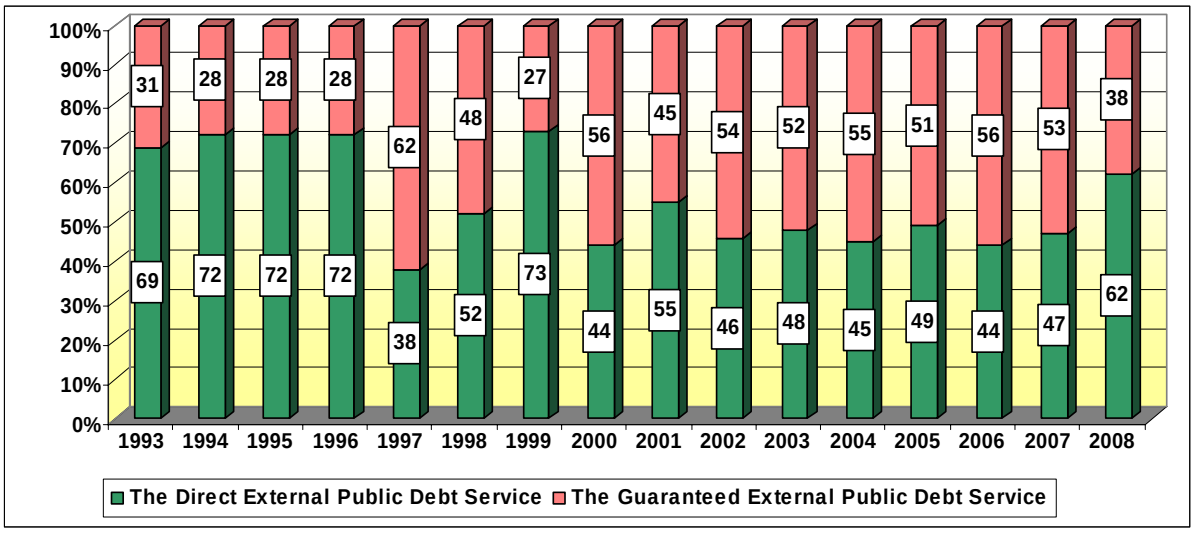
Also depending on the debtor type (Figure 8), the structure of the external public debt shows that the average share of the total external public debt, representing the direct external public debt, was 70% during the analyzed period. The average share of the total external publuic debt, repesenting the guaranteed external public debt increased quite slowly between 1993 and 2000 (from 24% to 32.3%), reaching the lavel of 37.9% in 2004, then gradually decreasing to 16.1% in 2008.



Source: Realized by the authors of the present article based on data taken from the Ministry of Public Finance.

Figure 8. *The structure of the romanian external debt by debtor type between 1993 and 2008*

Also, it is important to know the structure of the external public debt service, depending on the type of financing: direct, indirect or guaranteed. The evolution of the external public debt service, both direct and guaranteed by the state, is presented in Figure 9.



Source: Realized by the authors of the present article based on data taken from the Ministry of Public Finance.

Figure 9. *The structure of the Romanian external public debt service, both direct and guaranteed between 1993 and 2008*

One can notice that, out of the total external public debt service, the largest share is represented by the direct external public debt service, involving expenses with the payments of capital installments, as well as payments with interest rates and fees within the service of the external public debt, contracted by the state between 1993 and 1996, as well as in 1998, 1999, 2001 and 2008. The other years of the analyzed period were dominated by the service of the guaranteed external public debt. Generally, there was a certain balance between the two debt types. Still, for the guaranteed public loans, the state pledged to pay for the debtors to whom it had signed guarantees.

5. Conclusions

From the general analysis of the total public debt, structured on two components (the internal public debt and the external public debt), following a certain evolution and structure, one can conclude that the largest share is represented by the debt coming from external sources. The limits of the public debt are important only if the state treasury is involved and they must fit into a certain budgetary vision. Otherwise, they must be fixed while considering the macroeconomic evolutions.

During an inflation period, the debt contracted to cover the budgetary deficit is more reasonable, as the fiscal revenues increase and the debt service stays at the level established in the previous loan contract.

When analyzing the sustainability of the public debt, one must take into account: i) the existing public debt of a state; ii) the contracting methods and the repayment terms; iii) the structure and dynamics of the debt portfolio; iv) the macroeconomic performance registered by the state in terms of economic growth, the level of fiscal revenues, the dynamics of the external trade, etc.

Moreover, the share of the total internal public debt representing the direct internal public debt is higher than the one representing the guaranteed internal public debt and this situation was caused by the fact that the direct internal public debt was generated by the budgetary deficit and by the decision of financing debt taken over by the state, based on special laws and regulations.

A debt which is unappropriately structured depending on the maturity can be an important factor in triggering economic crises.

An ineffective use of the external loans can lead to a limitation of the acces to finances on the external market, and can even cause a debt crisis.

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ECONOMIC GROWTH – A COST-BENEFIT ANALYSIS

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Abstract. *This article identifies the theoretical aspects related to the process of growth, definition, determinant factors, costs and benefits genereted by economic growth, hierarchy of the EU countries based on various indicators that quantify the economic growth.*

Keywords: economic growth; social welfare; cost-benefit analysis.

JEL Codes: E60, I30, O40.
REL Codes: 8E, 18F.

1. Introduction

The theoretical and empirical literature regarding economic growth seeking answers to these fundamental questions related to economic growth: What are the explanatory factors of differences in living standards in different countries? How can the growth be stimulated? What is the state's role in the process of economic growth?

Economic growth is often an objective of economic policy. For a “correct” analysis of this phenomenon and in order to identify those economic policy strategies that stimulate economic and social welfare it should be quantified the benefits as well as the costs of economic growth.

On the other hand it should be used those indicators to quantify the growth process that capture also the qualitative aspects, which requires adjustments in the indicators calculated based on the Gross Domestic Product (GDP). Also for the international comparisons of economic growth, classic indicators have to be adjusted.

This article is structured in two parts: the first section contains the theoretical aspects related to the process of growth - definition, determinant factors, costs and benefits of economic growth; in the second section I realized hierarchy of the EU countries based on various indicators for quantification of economic growth.

2. Economic growth – theoretical aspects of cost-benefit analysis

Economic growth is a complicated process. In Figure 1 I captured the most important aspects to be considered for the analysis of economic growth.

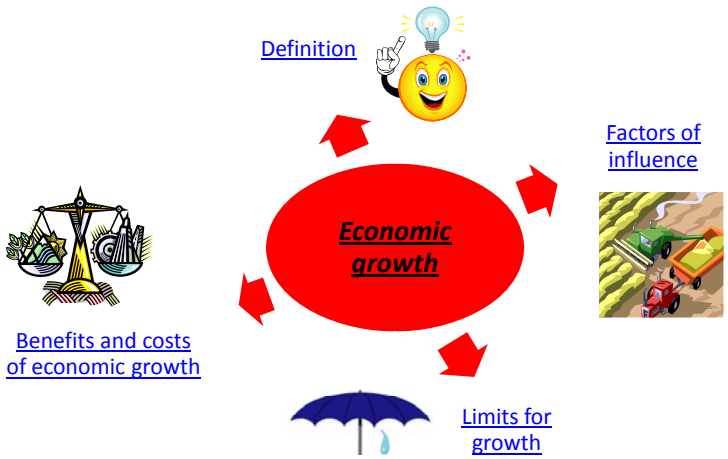

Figure 1. *Economic growth*

Definition

Economic growth can be defined as an increase in the capacity of countries to produce goods and services. This increase in production can be achieved by employing additional resources in the production process or through more efficient use of existing resources. This growth can be measured through indicators such as Gross Domestic Product (GDP) or Gross National Product (GNP).

Factors of influence

Growth is a complex process, so that it has developed an interdisciplinary approach to explain and determine the factors of influence of growth. In the matrix below there are centralized the dependencies uni/bi directioned between the main determinants of growth: the production factors, technology, demographic, geographical and climatic factors, cultural factors, institutional factors, income distribution, government policies, macroeconomic stability.

Table 1

The matrix of interactions - the possible interdependence in the economic growth process

	Capital and Labor	Technology	Demographic Factors	Geographical Factors and Climate	Cultural Factors	Institutional Factors and Democracy	Income Distribution	Government Policies	Macroeconomic Stability	Economic Growth
Capital and Labor	1									
Technology	2	11								
Demographic Factors	3	12	20							
Geographical Factors and Climate	4	13	21	28						
Cultural Factors	5	14	22	29	35					
Institutional Factors and Democracy	6	15	23	30	36	41				
Income Distribution	7	16	24	31	37	42	46			
Government Policies	8	17	25	32	38	43	47	50		
Macroeconomic Stability	9	18	26	33	39	44	48	51	53	
Economic Growth	10	19	27	34	40	45	49	52	54	55

Source: Kibritcioglu, A., Dibooglu, S. (2001).

Observation: *the direction of causality between two variables is given by the arrow in the cell; the strenght of the causality is given by the intensity of the color.*

Limits for economic growth

The process of growth depends on the quality, the quantity and the capacity of utilization of production factors. Thus, the growth has limits caused by insufficient labor supply, poor technical infrastructure, poor social infrastructure, poor industrial infrastructure, limited access to export markets, economic policies of developed countries, average level of income, the propensity for consumption/savings.

Benefits and *cost* of economic growth

GDP growth is often considered an economic policy objective. The benefits of economic growth are related to the increase in income and consumption, which in turn implies an increase in living standards (Eklund, 1995). An increased production also implies an increased need for labor, so a reduction in unemployment, with the potential to reduce poverty and increase social equity.

Usually there are taken into account only the beneficial effects of economic growth – the increase of the gross domestic product in real terms or per capita. However there have to be considered also the negative effects that can be generated by the economic growth: environmental degradation, destruction of natural resources, unfair distribution of social welfare, the negative consequences of social objectives, pressures on social relations, etc.

The pportunity of economic growth should be analyzed based on the costs and benefits associated with them and they generate effects on social welfare. If the benefits exceed the costs, then social welfare is improved, but if the costs exceed the benefits, social welfare is adversely affected. In the literature, the debate about the costs and benefits of economic growth has its origins in the late 1960s, when they were perceived potential negative impacts of economic growth on social welfare by reducing the environmental ans resource quality (Barkley, 1972, Seckler, Mishan, 1971, 1977, Meadows et al., 1972).

For an analysis of the economic growth phenomenon it must be taken into account the entire social-economic-environmental system, with various sub-components of the economy - social, political, environmental, spiritual, in order to determine the level, quality and composition of the social assistance related to the process of increasing economic. The important issue is the sustainable human development, with economic development and the impact of globalization on developing economies.

The cost-benefit analysis of economic growth involves the identification of the intra- and inter-generational effects (Clayton, Radcliffe, 1996, Paavola, Bromley, 2002). If, and often this is the case, the benefits of growth are individual (in terms of better employment, higher incomes and greater consumption), and costs are more social (urbanization, environmental degradation) and if there are different lags of the costs and benefits effects, the analysis is complicated and must be applied an inter-generational model.

3. Economic growth - indicators

The growth process is usually measured by indicators calculated on the basis of GDP, this indicator measures the ability of an economy to produce goods and services. As alternatives for quantifying the economic growth, there are used: the logarithm of real GDP (Arestis, Demetriades, Luintel, 2001), the rate of GDP growth (Baier, Dwyer Jr., Tamura, 2004) and GDP capita (King, Levine, 1993).

Table 2

GDP per capita in purchasing power standards (PPS) for EU countries (EU-27 = 100)

Geo\time	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Luxembourg	245	234	240	247	253	255	270	275	279	271
Netherlands	134	134	133	129	129	131	131	133	134	130
Ireland	131	132	138	141	142	144	145	147	134	128
Austria	131	125	126	127	127	124	125	123	124	122
Sweden	128	122	122	124	126	122	123	125	122	120
Denmark	131	128	128	124	126	124	124	121	120	118
Belgium	126	124	125	123	121	120	118	115	115	116
Germany	118	117	115	116	116	117	116	116	115	116
United Kingdom	119	120	120	122	124	122	120	117	116	116
Finland	117	115	115	112	116	114	114	118	117	111
France	115	116	116	112	110	111	109	108	108	108
Spain	97	98	100	101	101	102	104	105	103	104
Italy	117	118	112	111	107	105	104	103	102	102
Cyprus	89	91	89	89	90	91	91	93	96	98
Greece	84	86	90	93	94	91	93	92	93	93
Slovenia	80	80	82	83	86	87	88	88	91	87
Czech Republic	68	70	70	73	75	76	77	80	80	80
Portugal	81	80	80	79	77	79	79	78	79	79
Malta	84	78	79	78	77	78	77	77	77	78
Slovakia	50	52	54	55	57	60	63	67	72	71
Estonia	45	46	50	54	57	62	66	70	68	63
Hungary	55	59	62	63	63	63	63	62	65	63
Poland	48	48	48	49	51	51	52	54	57	61
Lithuania	39	41	44	49	50	53	55	59	62	53
Latvia	37	39	41	43	46	49	52	56	57	49
Romania	26	28	29	31	34	35	38	42	48	45
Bulgaria	28	30	32	34	35	37	38	40	43	:

Source: *Eurostat.*

In the table above there is a ranking of EU countries by GDP per capita in 2009. The first five places are occupied by Luxembourg, Netherlands, Ireland, Austria and Sweden, while the last five places are occupied by Bulgaria, Romania, Latvia, Lithuania, Poland.

Table 3

Real GDP growth rate (%change) for EU countries

Geo\time	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Poland	4.3	1.2	1.5	4	5.4	3.7	6.3	6.8	5.1	1.6
Malta	:	-2.4	1.9	-0.9	0.2	3.4	2.9	3	1.8	-2.3
Cyprus	3.9	2.9	0.8	0.2	1.8	1.4	2.1	3.6	2.4	-2.3
Greece	4.1	3.9	3.1	5.6	4	1.9	4.1	3.8	0.9	-2.5
Portugal	3.4	1.3	0	-1.6	1	0.3	1.1	2.2	-0.1	-2.7
France	3.2	1.1	0.3	0.4	1.7	1.1	1.5	1.8	-0.3	-3.2

Geo\time	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Belgium	3.4	0.4	0.9	0.4	2.8	1.2	2	2.2	0.2	-3.5
Austria	3.4	0.1	1.1	0.4	1.9	1.8	3.1	3.3	1.7	-4.2
Spain	4.2	2.5	1.2	1.4	1.6	1.9	2.4	1.7	-0.7	-4.4
Germany	3.1	1.1	-0.2	-0.3	1.2	0.8	3.5	2.8	1.2	-4.4
Netherlands	3.2	1.2	-0.6	-0.1	1.9	1.8	3.2	3.7	1.5	-4.4
Bulgaria	6.3	7.5	5.2	6.4	7.3	6.9	7.1	7	6.7	-4.5
Czech Republic	3.8	2.9	2.1	3.6	4.4	6	6.5	5.6	1.4	-4.9
Slovakia	1.3	3.9	4.6	4.8	5	6.6	8.4	10.4	5.6	-5
Denmark	3.2	0.3	0.1	0.1	2.1	2.1	3.1	1.3	-1.4	-5.3
Luxembourg	7	1.4	3	0.3	3	3.8	3.3	4.9	-0.3	-5.5
United Kingdom	3.6	2.1	1.7	2.4	2.5	1.5	2.2	2	-0.7	-5.6
Italy	3.6	1.8	0.1	-0.8	0.5	-0.1	1.5	0.7	-2.1	-5.7
Sweden	4.3	1	2.2	2	3.8	2.7	3.7	2.6	-1.6	-6
Hungary	5.2	4	4.4	4.3	4.8	3.4	3.8	0.9	1	-6.5
Romania	2.5	5.8	8	5.5	8.8	4.4	8.1	6.5	7.5	-7
Ireland	8.3	4.1	4.7	2.7	2.8	3.7	2.8	3.1	-5.2	-8.1
Finland	5.1	2	1.6	1.8	3.8	2.6	4	4.9	0.5	-8.5
Slovenia	4.1	2.7	3.8	2.8	4.2	4.3	5.5	6.3	3.6	-9
Estonia	10.5	7.9	8.4	8	7.6	9.7	10.8	7.1	-5	-13.9
Lithuania	4	7.3	7.2	10.7	7.9	8.5	8.5	10.4	3.5	-14.3
Latvia	7.6	8.9	7.2	7.8	9.3	11.2	12.8	10.6	-3.8	-17.5

Source: *Eurostat.*

In the table above there is a ranking of EU countries by the growth rate of real GDP in 2009. Rating changes radically from the situation presented in the previous table, because this index reflects the growth rate of real GDP. The first five places are occupied by Poland, Malta, Cyprus, Greece and Portugal, while the last five places are occupied Latvia, Lithuania, Estonia, Slovenia and Finland.

A more complex indicator is the Human Development Index (HDI), promulgated by the United Nations Development Programme. This indicator is used as an alternative to conventional measures of economic growth and includes related quantification for

- population health and longevity: life expectancy at birth
- access to education: mean years of schooling and expected years of schooling
- standard of living: GDP per capita.

Table 4

Human development index for EU countries

Geo\time	2000	2005	2006	2007	2008	2009	2010
Ireland	0.855	0.886	0.891	0.896	0.896	0.894	0.895
Netherlands	0.868	0.877	0.882	0.886	0.888	0.888	0.890
Sweden	0.889	0.883	0.885	0.885	0.885	0.884	0.885
Germany	..	0.878	0.881	0.883	0.885	0.883	0.885
France	0.834	0.856	0.860	0.864	0.867	0.869	0.872
Finland	0.825	0.863	0.868	0.870	0.871	0.869	0.871
Belgium	0.863	0.858	0.861	0.864	0.865	0.865	0.867

Geo\time	2000	2005	2006	2007	2008	2009	2010
Denmark	0.842	0.860	0.861	0.864	0.865	0.864	0.866
Spain	0.828	0.848	0.852	0.857	0.861	0.861	0.863
Greece	0.784	0.839	0.846	0.847	0.851	0.853	0.855
Italy	0.825	0.838	0.844	0.848	0.850	0.851	0.854
Luxembourg	0.845	0.856	0.853	0.861	0.851	0.850	0.852
Austria	0.826	0.841	0.845	0.846	0.849	0.849	0.851
United Kingdom	0.823	0.845	0.842	0.845	0.847	0.847	0.849
Czech Republic	0.801	0.838	0.841	0.843	0.844	0.841	0.841
Slovenia	0.780	0.813	0.819	0.825	0.828	0.826	0.828
Slovakia	0.764	0.796	0.803	0.811	0.816	0.815	0.818
Malta	0.783	0.806	0.807	0.809	0.812	0.813	0.815
Cyprus	0.768	0.793	0.798	0.804	0.807	0.809	0.810
Estonia	0.762	0.805	0.811	0.816	0.816	0.809	0.812
Hungary	0.767	0.798	0.802	0.803	0.804	0.803	0.805
Poland	0.753	0.775	0.779	0.784	0.788	0.791	0.795
Portugal	0.774	0.775	0.778	0.785	0.789	0.791	0.795
Lithuania	0.730	0.775	0.780	0.785	0.789	0.782	0.783
Latvia	0.709	0.763	0.771	0.777	0.777	0.769	0.769
Romania	0.690	0.733	0.743	0.754	0.765	0.764	0.767
Bulgaria	0.693	0.724	0.729	0.736	0.741	0.741	0.743

Sou**rce:** United Nations Development Programme.

In the table above there is a ranking of EU countries by Human Development Index value of 2009. Rating changes to the situation described in the previous tables, because this indicator has a three dimensional structure - health, education and standard of living. The first five places are occupied by Ireland, Netherlands, Sweden, Germany, France, while the last five places are occupied by Bulgaria, Romania, Latvia, Lithuania, Portugal.

Table 5

Hierarchy of EU countries
2009 – (a) GDP per capita, (b) real GDP growth rate, (c) HDI

	(a)	(b)	(c)			(a)	(b)	(c)
Austria	4	8	13		Latvia	25	27	25
Belgium	7	7	7		Lithuania	24	26	24
Bulgaria	27	12	27		Luxembourg	1	16	12
Cyprus	14	3	19		Malta	19	2	18
Czech Republic	17	13	15		Netherlands	2	11	2
Denmark	6	15	8		Poland	23	1	22
Estonia	21	25	20		Portugal	18	5	23
Finland	10	23	6		Romania	26	21	26
France	11	6	5		Slovakia	20	14	17
Germany	8	10	4		Slovenia	16	24	16
Greece	15	4	10		Spain	12	9	9
Hungary	22	20	21		Sweden	5	19	3
Ireland	3	22	1		United Kingdom	9	17	14
Italy	13	18	11					

In the table above I centralized the hierarchies of EU countries according to criteria GDP per capita, growth rate of real GDP and the Human Development Index. Unfortunately, Romania occupies a place from the end, which would be an incentive to adjust current policies in order to obtain a higher social welfare.

Using GDP for measuring economic growth process has several drawbacks: first, if it is used for comparisons between countries it can lead to wrong conclusions if there are differences in the size of the informal sector; secondly, the increase in GDP does not contain information about how growth was achieved, respectively on the social welfare changes, the effects on the environment and working conditions, on capital depreciation and stocks of natural resources.

To correct the shortcomings outlined above, it was proposed the index of sustainable economic welfare (Daly, Cobb, Cobb, 1989 Cobb, Cobb, 1994, Jackson, Stymne, 1996), which can be determined as follows:

personal consumption
+ non-defensive public expenditures
- defensive private expenditures
+ capital formation
+ services from domestic labour
- costs of environmental degradation
- depreciation of natural capital.

Acknowledgements

This article is a result of the research supported by POSDRU89/1.5/S/59184 "Performanță şi excelență în cercetarea postdoctorală în domeniul ştiințelor economice din România" (Performance and Excellence in Postdoctoral Research in economic sciences in Romania).

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FINANCING OF VAT TO THE LOCAL BUDGETS AND SOME ASPECTS IN THE CONTEXT OF ECONOMIC AND FINANCIAL CRISIS

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Abstract. *Providing financial resources for public funds is difficult to effectuate and the central government and local government level. Since local budgets do not own income sufficient to ensure the financing of all expenditures on behalf of local collectivities, then the state budget provides funding for social, economic local destinations. Decentralization of public services is accompanied by financial descentralization. In this paper we present some aspects of VAT revenue from the state budget used to support certain activities at the local level, the evolution of these allocations in the context of current budgetary constraints due to financial crisis.*

Keywords: budgetary constraints; local needs; budget; budgetary decentralization; public services.

JEL Codes: H59, H61, H72, H75, H76, H83.
REL Codes: 13C, 13F, 13G.

1. Introduction

Local authorities know best their financial opportunities and achieve the best estimates of resource requirements to meet the needs of the territorial level. Since local resources are insufficient to conduct their own optimal conditions of some social, economic activities, from the central level provide the necessary resources through various means (subsidies, transfers, rates and broken down amounts from certain categories of income). In the period 1993-2003 there were made available to local budgets broken down amounts from tax on salaries, income tax for certain purposes, as follows: ◆ social protection, regarding social aid and aid for heating and◆ amounts for local balanced budgets ✸ to support of the people with disabilities protection system ✸ for supporting of the child protection system ✸ for financing of decentralized cultural institutions since 2002 ✸ to pay contributions for non-clerical staff engaged in religious establishments in the country ✸for own counties budgets ✸ for own communes, towns and municipalities budgets which obtain insufficient own revenues. Since 2001 from the VAT received on the state budget there have been broken down amounts to local budgets to finance social destinations, mainly, to finance pre-university state education, but also economic and other activities. Note that until this year, the amounts to finance this form of school education units were transmitted in the "education" budgetary chapter hierarchy, by authorizing public institutions without direct connection with VAT. After this year, an important part of pre-university state education expenditure, respectively staff expenditure is ensured from VAT collected on the state budget and passed to the local budgets. We appreciate that is very important to research the evolution of broken down amounts from VAT during 2001-2010. We analyze these budgetary allowances development of their, new local collectivities needs that must be financed, finance decentralized expenditure, increases or decreases of the amounts depend by the evolution of financial crisis in order to efficiently use in the future of limited and decreasing resources.

2 . Financing of the VAT on local budgets in 2001-2005

Since 2001 from the value added tax received on the state budget there have been set broken down amounts for administrative-territorial units budgets of communes, towns, municipalities and counties to finance decentralized expenditure: expenditure of pre-university state education institutions, nurseries expenditures, the local advisory centers for agriculture. Regarding pre-university state education, in addition to staff expenditure and scholarships, equipment inventory and school books for pupils were funded. Amounts were transferred to county budget to finance special education and providing dairy and bakery products for pupils in classes I to IV and since 2004 these products are given in kindergartens and preschool children with normal schedule (4 hours)

In Table 1 presents the broken down amounts from VAT submitted to counties budgets and to local budgets of communes, towns and municipalities to finance expenditure on education, social, economic actions.

Table 1

Financing of the VAT in Romania during 2001-2005

	Indicators (Mil-lei)	2001	2002	2003	2004	2005
1	GDP	116,768.7	151,475.1	197,564.8	246,468.8	288,176.1
	- rate of rise -2001-base	1	1.29	1.69	2.11	2.46
2	State budget revenues, total, of	15,309.2	17,886.0	24,126.8	28,827.9	35,736.7
	which:	1	1.16	1.57	1.88	2.33
	-- rate of rise -2001-base	13.1	11.81	12.21	11.70	12.40
	-percentage of GDP					
3	VAT received, of which:	7,151.7	9,338.2	12,457.2	15,618.9	18,609.4
	-- rate of rise -2001-base	1	1.30	1.74	2.18	2.60
	- percentage of GDP	6.12	6.16	6.31	6.34	6.46
4	Broken down amounts from VAT, of	2,166.1	3,121.9	3,434.8	4,603.8	5,940.2
	which for:	1	1.44	1.58	2.12	2.74
	-- rate of rise -2001-base	1.86	2.06	1.74	1.86	2.06
	- percentage of GDP					
4.1	Pre-university state education, of	2,146.34	2,738.18	3,399.6	3,797.42	4,560.28
	which for:					
	- rate of rise -2001-base	1	1.27	1,58	1.76	2.12
	- percentage of GDP	1.84	1.81	1.72	1.54	1.58
4.1.1.	Own budgets of counties, which for:	93,26	118.99	266.34	363.28	434.18
4.1.1.1	Special Education	93.26	118.99	143.09	160.75	197.6
4.1.1.2.	Dairy and bakery products for pupils and preschools	-	-	123.25	202.53	236.58
4.1.2.	Local budgets of communes, towns, municipalities, of which :	2,053.07	2,619.19	3,132.72	3,434.15	4,126.1
4.1.2.1.	Staff expenditure for pre-university state education	2,023.51	2,596.65	3,106.95	3,406.06	4,094.7
	- rate of rise -2001-base	1	1.28	1.53	1.68	2.02
	- percentage of GDP	1.73	1.71	1.57	1.38	1.42
4.1.2.2.	Scholarships	15.71	19.17	25.76	28,08	31.4
4.1.2.3.	Equipment inventory	-	3.37	included in 4.1.2.2.	included in 4.1.2.2.	included in 4.1.2.2.
4.1.2.4.	School books	13.0	-	-	-	-
4.2.	Nurseries' expenditures	10.3	16.85	20.27	23.45	26.23
4.3.	Advisory centers for agriculture	9.43	13.11	15.51	18.22	20.37

Sursa: Calculated by us based on data from *www.mfinante.ro*

In 2002 the amounts were allocated to support the child protection system: 152.29 million lei, representing 4.87% of the broken down amounts from VAT, amounts to support disabled child protection system: 14.52 million lei, representing 0.48% of the broken down amounts from VAT and amounts to support the system of protection of persons with disabilities: 186.91 million lei, representing 5.98% of the broken down amounts from VAT.

In 2003 and 2004 have not been financed from VAT above three destinations, its funding of income tax. It has aided thermal energy delivered the population in 2004 amounted to 764.71 million lei, which represents 16.61% of the broken down amounts from VAT. *Increasing needs of local budgets in 2005* kept to subsidize the thermal energy delivered the population: 497.51 million lei, respectively, 8.38% of the broken down amounts from VAT, to support the child protection system: 360.71 million lei, respectively 6.07% of the broken down amounts from VAT, but also to add other destinations: refurbishment, modernization and development of centralized thermal energy production and distribution: 245.05 million lei, respectively, 4,13% of the broken down amounts from VAT, county and communal roads' expenditures: 230.0 million lei, which is 3.87% of the broken down amounts from VAT.

The data in Table 1 show that rates of rise of GDP are exceeding those of state budget revenues and they, each of them, are overwhelmed by rates of rise of the VAT received. *The need for resources at the local level resulted in annual increases in the broken down amounts from VAT submitted to the local budgets: +44% in 2002, +58% in 2003, +112% in 2004 and +174% in 2005* compared with 2001 considered as base year. Increasing trends of pre-university state education funds (from 27% in 2002 to 112% in 2005) distinct staff expenditure in this area (from 28% in 2002 to 102% in 2005) reflects the growing local needs but also the manifestation of financial decentralization.

Regarding the level of resources considered in GDP is found that the state budget revenues decreased from 13.1% in 2001 to 12.4% in 2005, while the level of VAT received increased from 6.12% in 2001 to 6.46% in 2005. Growth recorded and the broken down amounts from the VAT to GDP from 1.86% in 2001 to 2.06% in 2005. Decreased levels of GDP were recorded amounts for financing pre-university state education, respectively from 1.84% in 2001 to 1.58% in 2005 and staff expenditure for pre-university state education, respectively to 1.73% in 2001 to 1.42% in 2005. These decreases are due to funding and other activities actions are shown in Table. 1.

In Table. 2 shows the evolution of funding from VAT in Romania during 2001-2005.

There is VAT contribution to the establishment of state budget resources, respectively 46.71% in 2001 and VAT received from 2002-2005 purchased more than half of the revenue state budget.

In terms of the place of broken down amounts from VAT in the VAT received to the state budget revenues, shows that approx. 30% of this indirect tax funds expenditure in local budgets (33.43% of VAT received in 2002- highest level during the period analyzed- and 27.57% of VAT received in 2003 – the lowest level in the period analyzed). In the broken down amounts from VAT first destination is pre-university state education -more than 76.8%, followed by economic destinations, advisory centers for agriculture: between 0.44% and 0.34% and social destinations -nurseries expenditures:from 0.59% in 2003 and 0.44% in 2005.

Table 2

Evolution of financing from VAT in Romania during 2001-2005

	Percentage of	2001 %	2002 %	2003 %	2004 %	2005 %
1	VAT in state budget revenues	46.71	52.21	51.63	54.18	52.07
2	Broken down amounts from VAT in VAT received	30.28	33.43	27.57	29.48	31.92
3.	Funding for pre-university state education in the broken down amounts from VAT	99.1	87.7	98.9	82.5	76.8
4.	Staff expenditure for pre-university state education in the broken down amounts from VAT	93.42	83.18	90.45	73.98	68.93
5	Nurseries' expenditure in the broken down amounts from VAT	0.48	0.54	0.59	0.51	0.44
6	Expenditure of local advisory centers for agriculture in the broken down amounts from VAT	0.44	0.42	0.45	0.4	0.34

Sursa: Calculated by us based on data from *www.mfinante.ro*

3. Financing of the VAT in local budgets in Romania during 2006-2010

2006 is the year with many news financing decentralized expenditures both at counties and Bucharest Municipality level and the communes, towns and municipalities level.

The broken down amounts from the VAT to the counties level are used for: ✸ child protection system, ✸ social centers for persons with disabilities, ✸ granting rights to the dairy and bakery products for pupils in classes I to IV in public education and preschool children in kindergartens with normal schedule (four hours) ✸ special education expenditure ✸ cultural institutions decentralized since 2002; ✸ payment of contributions for non-clerical staff engaged in religious establishments in the country; ✸ community public services, respectively, the Record of the Population Service under the authority of county councils; ✸ the national regional aid under the Law no. 84/1992 for the free zone regime, for the free zones administrations under the authority of county councils.

The broken down amounts from the VAT at the communes, towns, municipalities level are used to finance:✦ staff expenditure, scholarships and equipment inventory of the pre-university state education institutions,✦ rights personal assistants to severely disabled persons; ✦ social aid and aid for heating homes with wood, coal and petroleum fuels; ✦ community public services, respectively, the Record of the Population Service under the authority of communes, towns, municipalities councils; ✦ national regional aid under the Law 84/1992 for the free zone regime, for the free zones administrations under the authority of communes, towns, municipalities councils; ✦ nurseries' expenditures; ✦decentralized expenditure of sectors of Bucharest and Bucharest Municipality, respectively: child protection system, social centers for persons with disabilities, granting rights to the dairy and bakery products for pupils in classes I to IV in public education and preschool children in kindergartens with normal schedule (four hours), Special Education, cultural institutions decentralized since 2002 and payment of contributions for non-clerical staff engaged in religious establishments in the country.

Table 3

Financing of the VAT in local budgets in Romania during 2006-2010

	Indicators (Mil-lei)	2006	2007	2008	2009	2010
1	GDP - rate of rise -2001-base	344,535.5 2.95	390,800.0 3.34	514.654.0 4.41	491,274.0 4.21	511,582.0 4.38
2	State budget revenues, total, of which: -- rate of rise -2001-base – -percentage of GDP	42,822.6 2,8 12.43	55,575.5 3.63 14.22	67.004.7 4.38 13.02	75,689.7 4.94 15.41	66,654.3 4.35 13.03
3	VAT received, of which: -- rate of rise -2001-base - percentage of GDP	26,047.0 3.64 7.56	38,950.9 5.45 9.97	41.000.0 5.73 7.97	44,.416.4 6.21 9.04	35,548.8 4.97 6.95
4	Broken down amounts from VAT, of which for: -- rate of rise -2001-base - percentage of GDP	9,703.4 4.48 2.82	14,552.52 6.72 3.72	15.063.8 6.95 2.93	17,624.5 8.14 3.59	17,000.23 7.85 3.32
5	Financing decentralized expenditures in the counties, of which: - percentage of broken down amounts from VAT	1,057.8 10.9	1,396.87 9.6	1.702.9 11.3	2,022.2 11.47	2,053.4 12.08
5.1.	Funding for child protection system -percentage of broken down amounts from VAT	368.3 3.8	510.12 3.51	824.36 5.47	978.4 5,55	962.83 5.66
6	Financing decentralized expenditures in the communes, towns, municipalities, of which: -percentage of broken down amounts from VAT	6,101.0 62.9	7,840.67 53.88	9.621.4 63.87	12,136.6 68.86	11,580.5 68.12
6.1.	Financing staff expenditure of pre-university state education -percentage of broken down amounts from VAT	4,880.2 50.3	6,785.9 46.63	7.845.5 52.1	10,246.8 58.14	9,961.9 58.6
7.	Financing expenditure for communal and county roads -percentage of broken down amounts from VAT	359.3 3.7	1,004.66 6.9	527.0 3.5	551.8 3.13	551.8 3.25
8.	Amounts for balancing the local and county budgets expenditures - - percentage of broken down amounts from VAT	1,442.8 14.86	3,006.8 20.66	2,402.5 15.9	1,999.7 11.35	2001.0 11.77
9.	Program funding for infrastructure development in rural areas - percentage of broken down amounts from VAT	-	668.29 4.6	810 5.4	914.2 5.19	813.5 4.79

Sursa: Calculated by us based on data from *www.mfinante.ro*

In addition, in 2006, amounts have been transferred to the thermal energy delivered to the population amounting to 252.1 million lei, which represents 2.6% of the broken down amounts from the VAT and amounts for refurbishment, modernization and development of centralized systems for production and distribution of thermal energy amounting to 490.4 million lei in 2006 and 635.18 million lei in 2007, which represents 4.36% of the broken down amounts from VAT.

Financing expenditure for communal and county roads ranges from 3.13% of the broken down amounts from the VAT in 2009 – lowest level and 6.9% of the broken down amounts from the VAT in 2007 – highest level.

As a novelty in 2008, there were granted extended rights dairy and bakery products and classes V-VIII in addition to classes I-IV (financed by county), and since 2009, from the decentralized county expenditure are financed expenditure on the provision of honey bees as a supplement for preschoolers and pupils in classes I to IV in public and religious education.

Analyzing the data in the table one finds aut that rates of rise of the broken down amounts from VAT outperforms rates of rise of GDP and the state budget revenues. Amounts to finance pre-university state education not exceed 60% of the broken down amounts from the VAT-they recorded the lowest level in 2007 - 46.63% and the highest level in 2010-58.6%. On the second place are situated the amounts allocated to balance expenditures of local and county budget- the lowest percentage of 11.35% in 2009 and the largest percentage of 20.66% in 2007.

4. Budgetary constraints in context of financial crisis

The analysis of the data in Table 3 indicates that GDP is a value programmed for 2010 20.308 million lei higher than in 2009, but lower than the 3.072 million lei in 2008, and 2010/2001 rate of rise of 4.38 is higher than in 2009/2001 (4.21) but lower than in 2008/2001 (4.41).

Rate of rise of 4.35 of state budget revenues in 2010/2001 is outdated by that in 2008/2001 (4.38) but that in 2009/2001 (4.84).

In respect of VAT received it decreased in absolute size from 44416.4 million lei in 2009 to 35,548.8 million lei in 2010 and as a percentage of GDP by 2.09 percentage points which led to decreased broken down amounts from VAT from 17624.5 million lei in 2009 to 17000.23 million lei in 2010, respectively 0.27 percentage points. Also, decreased and rates of rise from 8.14 to 7.85 and percentage in GDP from 3.59% to 3.32% in 2010 compared with 2009. Decreases in 2010 compared to 2009 in absolute size were recorded in the financing for child protection system, financing decentralized expenditures in the communes, towns, municipalities (and relative values by 0.74 percentage points), Program financing for rural infrastructure development (and relative sizes of 0.40 percentage points). Compared with 2008 only which dropped in 2010 were amounts to balance local and county budgets from 2402.5 million lei in 2008 to 2001 million lei to 2010 and relative size from 15.9% to 11.77% of the broken down amounts from VAT.

According to the data of Ministry of Finance broken down amounts from VAT used by local budgets compared with the local budgets revenues experienced decreases and increases as follows: 52.5% in 2006, 39.54% in 2007, 41.07% in 2008 and 36.89% in 2009.

5. Conclusions

Given the multitude of local government regulations in terms of its organization, its autonomy and its decentralization, in local public finance area, budgets, the budget process, the budgetary principles, reforms of local taxes, shows that financial resources can be mobilized by territorial administrative units unable to fund local collectivities needs.

Providing the necessary funds in such situations has been achieved or realized, in appropriate manner, by the state budget through broken down amounts and allowances from the tax on salaries, from income tax and VAT, according to the laws applicable in the system.

According to the principle of universality, budgetary revenue can’t be directly affected, nominated, a specific budget expenditure, excepting for donations and sponsorships which have established separate destinations. We appreciate that the broken down amounts from VAT submitted to the local budgets to be used for destinations mentioned, nominated in

the state budget, will infringe the principle of budgetary universality, respectively, the rule of the non-affected budgetary revenues.

VAT contribution in financing the needs of local communities is quite high since approximative half of state budget revenues is due to VAT then approximative third of the revenue from VAT is the broken down amounts from this tax and funding the:

- expenditure on pre-university state education;
- associated social expenditure of the education process and of the health of school population;
- social and social-cultural expenditure;
- public services expenditure;
- economic expenditure and, the most important of them;
- amounts for balancing the local and county budgets expenditures.

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CONSIDERATIONS REGARDING THE EXPENDITURE FOR AGRICULTURE IN ROMANIA IN THE CONTEXT OF ECONOMIC AND FINANCIAL CRISIS

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Abstract. *Agriculture is a traditional branch of Romanian economy which provides alimentary products needed by population, raw materials for industrial branches and products for export. In the last two decades, one of the most important characteristics of Romanian agriculture has been the chronic lack of capital. This caused the growth of inefficiency in resource allocation with consequences on development of competitiveness of Romanian farmers and of the entire agricultural sector. Privatization of agricultural lands determined the creation of millions of agricultural family holdings, of small sizes, with low yield production, especially for self-consumption.*

In this paper we will present some aspects regarding the amounts for agriculture in Romania in recent years and in the current financial and economic crisis conditions.

Keywords: common agricultural policy; agricultural subsidies; direct support of state; direct payments; economic and financial crisis.

JEL Codes: Q 14, Q 18.
REL Codes: 15 B, 15 D, 15 E, 20 I.

1. Introduction

Among the branches of Economy, agriculture, influenced by various factors, has registered in the last years a reduction of gross value added (GVA), although significant amounts of post-accession funds had been used to strengthen the economy producing high added value.

In agriculture, the labor market is characterized by: a) a high percentage of farmers in total employment, b) the large number of elderly farmers, c) excessive dependency of rural population on agricultural activities; d) low educational level and e) an emphasized decline of real incomes of population.

Regarding agricultural trade, Romania has been a traditional exporter of agricultural products until 1990, having a significant agricultural potential and a comparative advantage of natural resources.

After this year, it can be observed a considerable change of roles in the international agricultural markets from net exporter of agricultural products to net importer of agricultural products, respectively, with high growing deficits.

It is an emphasized decline, caused by the decrease of agricultural production, in relation to structural reforms of agricultural property and to the growth of the domestic demand for a wide range of alimentary and high quality products.

There are three stages of transition in agricultural trade. Thus, between 1990-1993, the period recorded a sharp decline and a negative trade balance, between 1994-1999 it can be observed a slight recovery in agricultural trade balance, followed by a new deterioration from 2000 to present.

The proportion of Romanian agricultural exports in total exports is maintained at low levels between 3.3% and 8%. Imports of food products is about 6-7% of total imports.

The discrepancy between potential and results regarding the agricultural trade and its trade balance is even more relevant if we take into account the fact that the employment rate in rural areas tends to rise to 40% and the share of agriculture in GDP does not exceed 10%.

The growths of production in recent years are mainly caused by the revival of livestock sector and of the productive potential of agricultural land, by increasing yields, as a consequence of measures to recover the agriculture (the extension of irrigated areas) and by adverse climatic conditions which lead to the decrease in crop production.

The main internal factors which affected and affect the production and trade of agricultural products, causing trade deficit of agricultural balance, are: a) the fragmented structure of agricultural holdings, b) the uncertain production of integrated systems for distribution and marketing c) the consequences of the fluctuating volume of annual production on export strategies (Cereal production) d) lack of information to producers on the market about the quality standards.

2. State measures to support agriculture

The forms used by Romania to finance agriculture with funds from the state budget are:

● System of premiums (providing money support for land) ● The vouchers (1997-2000) which were established to facilitate procurement of materials and services necessary for farming such as: seeds, planting material, fertilizers, diesel, mechanical work plowing, sowing, crop maintenance, and harvesting; ● The fund used to finance the expenses of farming for the vegetable sector and for animal breeding (its purpose - loans for farmers to finance the agricultural works and animal breeding); ● Premiums for the purchase of cereals for own consumption ● Premiums for export of cereals and animals ● Subsidies to cover a part of the price of seeds and to finance the wheat stocks.

The state budget allocated funds for: ● amendment of acid and alkaline soil, ● combating the pest and diseases in the plant, ● animal selection and breeding , ● supporting prices of agricultural products or financial support for purchasing seeds. Funds are provided for: ● subsidize interest of bank loans for farmers, ● land improvements, irrigation, drainage, soil erosion control, ● prevention and control of diseases in animals.

Besides the funds provided by the State Budget, Agriculture has received support from extra-budgetary resources, especially reimbursable extern funds, and, together with budget funds, these finances have a share of 5.4% of total public expenditure.

3. New tools and financial mechanisms to finance agriculture

Since 2001, agricultural financing from public funds has been made with new financial instruments and mechanisms, tools used in line with the EU Common Agricultural Policy.

Direct state support was directed towards farmers who own or manage farms holdings.

Farms holdings established in compliance with the minimum size eligible can benefit from direct state support, through subsidies on products, through direct payments, in order to improve the economic efficiency, to increase production and quality indices of agricultural products (wheat, rye, beets, soybeans, vegetables, sunflower); direct support of state is made through subsidies for meat production delivered to slaughterhouses, on animal categories.

State budget funds a number of capital expenditure on land improvement, animal breeding and selection, and provides the reimbursement of external expenditure.

Financial support for agriculture from budget funds has been conducted by grants for chemical fertilizers, financial aids for milk production, the subsidies of 50% the price of certified seed.

It has been allocated to the Ministry of Agriculture fund from the state budget since 2002, for compensation and subsidies for insurance premiums to farmers who have insurances for their crop and animals.

Farms can benefit from tax breaks similar to those practiced in the EU for investment (for the purchase of tractors, agricultural equipment, for irrigation installations, storage space, environmental protection investments, construction of greenhouses and other).

Agriculture and forestry, important sectors of the real economy, benefited from significant financial resources in order to run priority programs, which were conducted during 2003-2007: 1) development of livestock and of efficiency in the animal production sector (with an ongoing period of 10 years), 2) investment in land improvements, 3) strategic program of surveillance, prevention and control of animal diseases, seed quality control, testing the soils and implementation of rural development programs (indefinite ongoing duration), 4) Export Promotion (ongoing period by 2010), 5) sustainable development of cereals production, vegetables, fruit and viticulture (the length of ongoing period is 10 years), 6) sustainable forest development.

These programs have been and are financed from budgetary funds, and some of them will benefit from foreign/external irredeemable funds and foreign loans in co-financing (programs 4,5,6) and some programs will be funded from their own revenues (Programs 4 and 6).

Financial aids arise from the European Union, through SAPARD, PHARE programs, and external loans from the World Bank, European Bank for Reconstruction and Development, European Investment Bank. Their purpose is the development or rehabilitation of some sectors from agriculture and forestry, the up-date of technology, environmental reconstruction, boosting exports and improving competitiveness of food products.

In 2005, work in agriculture was conducted on two major coordinates: ● completion of land restitution properties (farmland and forests); ● absorption of European funds for agriculture (institutional building and improving the mechanisms of absorption). Thus, there have been taken steps to correct some normative acts and to adjust the institutional framework according to the Law on property and justice reform accompanied by some measures too (Law no. 247/2005). An agricultural life annuity was approved, as well as laws approved to stimulate investment in agriculture, to boost the absorption of SAPARD funds by taking risks by guarantee funds.

For 2006 were considered: ● Stimulating the transformation of peasant in family farms; ● Supporting the revaluation of agricultural products using market measures (market organization and regulation of food products on the pathway products, regulation the grain market, establishing market intervention mechanisms, in harmonization with EU practice); ● Development and modernization of villages; ● Sustainable development of forestry by: i) ensuring the integrity and growth of forest funds, ii) biodiversity conservation, the stability of forest ecosystem and iii) improving the accessibility of the forest.

Common Agricultural Policy and Fisheries is one of the most important EU policies that concentrate a large amount of community resources, geared towards the following areas: ● market measures ● Direct Payments ● Rural Development (European Fund for Agriculture and Rural Development - EFARD) ● Fishing (European Fisheries Fund), field where actions taken for developing the aquaculture and inland fisheries, modernization of fishing fleet as well as sustainable development of coastal fishing areas.

Amounts for Romania during 2007-2013 are:

- 8.022 Million euro by the European Fund for Agriculture and Rural Development,
- 231 Million euro by the European Fisheries Fund,
- 6.884 Million euro by the European Agricultural Guarantee Fund.

For 2007 were considered funding for: ● Sustainable development of plant, livestock and fisheries sectors and other programs (5584.7 million lei); ● The Farmer (520.0 million); ● Sustainable Development of forestry (305.0 million).

Regarding the National Strategic Plan for Fisheries were established the following priorities: ● Developing the market for products of the fisheries sector, ● Supporting the

sustainable development of fisheries areas and the improvement of quality of life in these areas ● Development of competitiveness and sustainability of the fisheries sector primary.

Regarding the National Rural Development Program 2007-2013 we mention that it aims the development of a competitive agriculture and forestry sector able to adapt to long-term changes, which takes into account the Community rules, preserves the environment and strengthens the processing sector.

To answer to the priorities and conditions of the local and regional economic situation given, Romania provided:

- Up to 45% (over 3 billion Euro) of funds from the EAFRD used for improving the competitiveness of agriculture and forestry sectors (Axis 1);
- 25% (2 billion Euro) for the improvement of environmental and rural areas through sustainable use of agricultural land and forestry (Axis 2);
- 27.5% (nearly 2 billion Euro) for the quality of life in rural areas and for the diversification of rural economy (Axis 3);
- 2.5% for the start-up and operation of local initiatives through the LEADER approach in order to promote the endogenous potential of the territory and to improve the local government.

The table below shows the expenditure for agriculture in Romania during 2006-2010 funded from the state budget. Analyzing the data from the table, it can be seen that the amounts allocated for agriculture during the 2006-2010 have increased comparing with 2006, the year prior the joining the EU, with percentages ranging from 29% in 2007, 93% in 2008 49% in 2010, the largest increase being in 2009 by 107%. The decrease the share stands by 0.53 percentage points in 2010 compared with 2009. Share of expenditures for agriculture ratio in the state budget expenditures increased from 7.9% in 2006 to 8.14% in 2007 to 9.67% in 2009,then they decreased to 8.86% in 2008 and 5.95% in 2010, the lowest level held in the analyzed period.

Evolution of expenditure for agriculture in Romania during 2006-2010

No. crt.	Indicators	2006	2007	2008	2009	2010
1	GDP Rate of rise- 2006-base year	344,535 1	390,800 1.13	514,654 1.49	491,274 1.42	511,582 1.48
2	State budget expenditure - Rate of rise - 2006-base year	51,235.6 1	64,373.5 1.25	80,886.4 1.58	94,767.5 1.85	101,678 1.98
3	Expenditure for agriculture - Rate of rise - 2006-base year	4,048.4 1	5,241.3 1.29	7,823.8 1.93	8,392.6 2.07	6,045 1.49
4	Share of agriculture in GDP	1.18	1.34	1.52	1.71	1.18
5	Share of agriculture in the state budget expenditures	7.9	8.14	9.67	8.86	5.95

Source: Calculated by us on the basis of data from: www.insse.ro and www.mfinante.ro

4. Conclusions

Agriculture contributes to the economic growth by its own growth, respectively by increasing the national vegetables and animal production according to the needs of national economy.

In Romania, agriculture can participate at the overall economic growth by transferring labor in branches and non-agricultural activities, with the condition that this transfer occurs as a result of the growth of labor productivity in agriculture and ensuring a superior productivity level in the branches where it moves.

Among the positive effects of Romania joining the EU, namely the integration of the Common Agricultural Policy we can mention: a) the reduction of the margin of variation of prices of agricultural products with at least 10%, b) the increasing investments in agriculture, c) the increasing number of exports of specific products of our country interesting for the European market; d) the imposition of EU quality standards, higher than Romanian standards.

The support provided by the Common Agricultural Policy and the productivity growth will ensure the growth of farmer's revenues.

The measures regarding the streamlining of the human resources market and of the financial resources, and the measures for rural development are aimed to drop the share of the agricultural population to 10% in the next 20 year.

To achieve the established goals set up for this economic field, there were taken into consideration the adoption of measures regarding the management of EU funds for agriculture grants (GEO 74/2009), respectively the creation of a general financial framework for the management of European financial assistance allocated to Romania as a EU state membership.

The development of this two programs, namely the National Rural Development Program financed by EAFRD and Operational Program for fishery financed by the EFF, the designation of the Management Authorities and those from certification and payment attend to transform the agriculture in a modern branch, which contributes to the sustainable development of the country.

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THE OBLIGATION OF INDIVIDUALS TO PAY VAT ON REAL ESTATE TRANSACTIONS

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Abstract. *The problem of VAT taxation on buildings sales transactions built by natural persons or belonging to them was not raised by NATA before January 1, 2008 because there was no statutory regulation on the obligation of natural persons carrying out real estate transactions to pay VATS.*

In 2009, NATA has launched a campaign to control the investors who have developed residential projects as natural persons in the past five years. So the fiscal bodies reinterpret the law texts, so that they can collect revenues from the budget.

Theoretically, the interpretation made by ANAF was assessed as being forced and non-legal.

Keywords: VAT; natural persons; real estate; transactions.

The problem of VAT taxation on buildings sales transactions built by natural persons or belonging to them has become very special since November 2009, when the National Agency for Tax Administration – NATA started a large campaign to control the investors who have developed residential projects as natural persons.

As their number is very large, ANAF have controlled (initially) a number of 7,145 people who have made 85,442 transactions, totaling $ 14.8 billion lei.

The period covered the last five years preceding the review, which is the statutory limitation period for tax debts in accordance with art. 131 par. (1) of the Tax Procedure Code.

According to the Ministry of Public Finance, opinions expressed both publicly and under the form of guidance given by the Directorate of VAT legislation(1), "VAT legislation has not been significantly amended since 2002".

It notes that since June 1st, 2002, the date of the Law no. 345/2002 on VAT effectiveness, natural persons who were making real estate transactions in order to obtain a continuing income would have been required to register and pay VAT, because until 1 January 2007, the date of Romania's EU accession, there was no VAT exemption for sales of land and buildings and any transaction was taxable if it was made by a taxable person.

As regards the occasional sale or personal property, these were not in the scope of VAT, as at present.

Regarding the concept of "taxable person" as defined by Title VI of the Tax Code, the taxable person has the meaning of Art. 127 par. (1) and represents the natural person, group of natural persons, institution, legal person as well as any entity able to pursue an economic activity – art. 125¹ par. (A) section 18 of the Tax Code.

Taxable person is any person who, in a manner independent and irrespective of location, develops economic activities such as those provided in par. (2), whatever the purpose or the result of this activity.

According to art. 127 par. (2) of the Tax Code, the economic activities include the activities of producers, traders and service providers, including mining activities, agricultural

activities and liberal activities or similar activities. Also, the exploitation of tangible or intangible goods, in order to obtain a continuing income, represents an economic activity.

It also asserts that "as the experience of practical application of these provisions has shown that setting the VAT regime applicable to real estate transactions made by natural persons is a difficult issue and should be considered case-by-case, it was decided to introduce into the rules of several explanations on these operations, as well as some examples. Thus, we point out that from 1 January 2010, following the publication of the Government Decision no. 1620/2009 amending and supplementing the Methodological Norms with reference to the application of Law no. 571/2003 regarding the Fiscal Code, approved by Government Decision no. 44/2004, the content of section 3 of the amended rules now include a series of supplementary explanations and a series of examples meant to facilitate the application of the provisions of art. 127 of the Tax Code".

Compared to this approach, entirely taken up by the local authorities empowered to hear appeals by natural persons promoted in the situation described above, we identify the following aspects to be considered:

As regards "the experience of practical application of these provisions", although the VAT Law was not significantly changed since 2002 on the definition of taxable economic activities and people, from the data we have, at least for the years 2002 - 2007, any natural person who has made real estate transactions is not registered as VAT payer.

Also, we are not aware of controls in this matter during the said period. This situation is due to unclear law dispositions regarding the VAT on property transactions made by natural persons, including the bodies that had to apply that law.

Thus, at the request of the President of the National Union of Notaries Public from Romania to the ANAF on December 21st, 2007 requiring clarification on the moment when the VAT payment is due for natural persons who have made real estate transactions, ANAF – the General Directorate for Tax Law and Procedures(2) states that "since January 1st, 2008 the natural persons that acting in an independent manner, alienate new constructions, parts of these or building lands in order to obtain a continuing income... are required to register for VAT purposes to the competent Tax Authority and to pay the Value Added Tax for these disposals". Consequently, the moment of birth of such an obligation shall be on 1 January 2008.

Moreover, there was not a procedure to reach the parties, and those who administered the tax were not aware of how taxpayers were going to do.

Asked by taxpayers in what form could be made the registration as a VAT-payer since 2004, the Minister of Finance contends(3) that such a record could be achieved under the Ministry of Public Finance Order no. 2224, order which came into force in 2006.

According to art.3 of this legislation, natural persons, except natural persons carrying out economic activities independently or exercising liberal professions, shall use the registration code for VAT purposes, assigned according to art.153 of the Tax Code, only for transactions covered by Title VI "Value Added Tax" of the Tax Code.

Natural persons defined in par. (1) shall be registered by submitting the form (020) "Tax Registration Statement/Specifications Declaration for Romanian natural persons" and is administered by the fiscal body on whose territorial area they have fiscal residence. The type and content of form (020) „Tax Registration Statement/Specifications Declaration for Romanian natural persons" was approved by the Order of the Minister of Public Finance no. 262/2007 for the approval of the forms for the fiscal registration of taxpayers(4).

It is obvious that the recording could not be achieved in 2002 or 2004 under a procedure established in 2006; or the Order of the Minister of Public Finances no. 2224/2006 made the difference between natural persons and those carrying out independent economic activities.

In most public appearances(5), ANAF top representatives have constantly asserted that by 2008 such a record was not manageable, requiring the intervention of legislature to create the legal framework able to allow the imposition of such taxes.

It follows that we are in a situation where, after seven years of passivity, the fiscal bodies reinterpret the law texts, so that they can collect revenues fro the budget.

If the need to make changes in law (called "explicitations") was felt, this fact was derived not from the fact that the law was not clear, but that there was no statutory regulation on the obligation of natural persons carrying out real estate transactions to pay VAT.

Regarding ANAF opinion, namely that the Government Decision no. 1620/2009, amending and supplementing the application Norms of the Law no. 571/2003 regarding the Fiscal Code, approved by Government Decision no. 44/2004, only have "explicitated" the situations in which the natural persons carrying out supplies of real estate are taxable, one observation must be made:

On January 1st, 2010, the methodological norms for the application of the law were not adopted, so that it can be argued that it's just about some explanations of legal texts in force since 2002.

At this time, the provisions of article 1 of OUG no. 109/2009 came into force, which in section 98 introduces a new article in the Law no. 571/2003 regarding the Fiscal Code.

This new article shows that "the situations in which the natural persons carrying out real estate supplies become taxable payers are explicitated in the norms."

So, this text amends the dispositions of the Tax Code, by adding a new article that, for the first time, refers expressly to the situations in which natural persons carrying out real estate supplies become taxable payers.

But even if it is estimated that a legislative provision obliging the natural persons carrying out real estate supplies to pay VAT exists, these rules do not meet the requirement of foreseeability of the law, constantly reiterated by the jurisprudence of the European Court of Human Rights.

Among the guarantees granted by the right to a fair trial and the right to protection of property, established by article 6 of the European Convention on Human Rights and art. 1 of the Protocol no. 1, the fulfillment of the requirement regarding the predictability of the law is comprised.

A rule is "foreseeable" if it is formulated with adequate precision so as to enable any natural person – that, if need be, may use an appropriate advice – to improve his behavior(6).

Given that both the central and local ANAF were unaware of the manner by which they can require natural persons to pay the tax, the violation of above mentioned texts is obvious.

Theoretically, the interpretation made by ANAF was assessed as being forced, non-legal and, ultimately illogical (Radu Bufan, „TVA asupra vânzărilor de construcții noi de către persoanele fizice", source: Portal fiscalitatea.ro" on website: www.fiscalitatea.ro) for the following reasons:

In the meaning of art. 127 par. (1) of the Tax Code, taxable person is considered any person who, independently and irrespective of place, carries out economic activities.

According to par. (2) of Art. 127 mentioned above, the exploitation of tangible or intangible property in order to obtain a continuing income represents an economic activity.

As regards the concepts of taxable person and economic activity, in paragraph 3 of the Methodological Norms for the application of Title VI of the Law no. 571/2003 on the Fiscal Code, approved by H.G. no. 44/2004, with ulterior modifications and completions, we must specify that, before the changes imposed by H.G. no. 1620/2009, the income obtained by natural persons from the sale of privately owned homes or other properties used by them for personal purposes shall not be considered as an economic activity, unless it is found that the respective activity is conducted in purpose of obtaining continuous incomes within the meaning of art. 127 par. (2) of the Tax Code.

The text of art. 127 par. (2) of the Tax Code includes the following provisions: "Under this title, the economic activities comprise the activities of manufacturers, traders and

service providers, including mining activities, agricultural activities or similar free professionals or assimilated.

Also, the economic activity is represented by the exploitation of tangible or intangible property win order to obtain a continuing income.

Therefore, the activities listed in art. 127 par. (2), Thesis I, shall circumscribe the following phrases: "the activities of manufacturers, traders or service providers."

"Manufacturers" are businesses that produce (manufactures) certain goods.(7)

"Traders" - are not considered in any case as the traders defined by the Commercial Code, but those who operate in the industry "trade", that buy and resell (wholesale, retail) products, goods(8).

"Service providers" are those who, also from a technical standpoint, do not carry out production or trade, but repair works, consulting, brokerage, etc (Radu Bufan, „VAT TVA asupra vânzărilor de construcții noi de către persoanele fizice", source: Portal fiscalitatea.ro" on website: www.fiscalitatea.ro).

The Thesis IInd of article 127 par. (2) states: "the economic activity is the exploitation of tangible or intangible property in order to obtain a continuing income".

It is impossible to believe that continuous incomes could be obtained from the sale of immovable property, as these are transactions which are executed at once (*uno ictu*).

Typically, the continuous activities mean rental, rental, concessions, real estate leasing, and not sales.

For this purpose, we invoke ECJ jurisprudence in the matter of defining the economic activity through the relevant considerations made by the Court when analyzed the provisions of art. 4 paragraph 1 and 2 of the 6th Directive (Directive no. 77/388/EC (8)), which was taken literally in the art. 9 paragraph 1 of Directive no. 112/2006/CE(9), as follows: "The scope of VAT is very broad and general; the exemptions from VAT application should be mentioned specifically in the law."

This conclusion was drawn in the case law Van Time (C – 186/89 section 17(10)), moreover, the point 3 of the current Methodological Norms for the application of the Tax Code expressly refers to the cases Van Time, C – 306/94 Régie dauphinoise, C – 77/01 Empresa de Desenvolvimento Mineiro SA (EDM), establishing that, in accordance with the basic principle of VAT that the tax system should be neutral, "the exploitation of tangible or intangible assets refers to any type transactions regardless of their legal form".

However, this very broad application range of the value added tax may not be limited only to the stages of production, distribution and services(11).

The same conclusion was resumed in the case Kraftfahrzeuge MKG – Factoring GmbH (C – 305/01(12)) as follows: "According to the constant jurisprudence of the Court, article 4 of 6th Directive (Directive no. 77/388/EC) gives VAT a very wide scope, encompassing all stages of production, distribution and supply of services" (section 42).

The above decisions set out both the general nature of the VAT application field, but that activity of real estate alienation cannot be integrated in production, distribution or provision of services in the absence of a legal text meant to expressly provide such a possible interpretation.

In this respect the VAT Directives acts.

The art. 4, paragraph 3 of the 6th Directive (Directive no. 77/388/EC) comprises a provision which gave Member States the right to treat as tax payers the persons occasionally carrying out the works mentioned at article 2, such as special operations in connection with certain buildings and building land (the case Berginvest Floridienne SA and Berginvest SA, C- 142/99 (13)).

However, the same text with the same wording has been reproduced in Directive no. 112/2006/CE, article 12 paragraph 1.

Consequently, if the Romanian legislature would wish to include the occasional activities related to the delivery of buildings, parts of buildings and building land within the

scope of VAT, he would have to include the operations carried out occasionally in the Title VI of the Tax Code. But, because the Romanian fiscal legislative did not follow this option, left at its discretion by the Directive on purely legal ground, we must conclude that the taxpayers could not be considered than those who carried out permanently those economic activities.

So if today there is a fragile provision in the Tax Code relating to situations in which natural persons carrying out real estate deliveries become taxpayers (para. (2)[1] art. 127, as introduced by OUG no. 109/2009), the text refers to the Application Norms of the Tax Code, for the situation prior to 2010 it is impossible to identify legal texts that would allow the VAT taxation of real estate sales by natural persons, purchased or built on their own.

Even if the opposite opinion is agreed, i.e. the existence of such regulation, it does not satisfy the requirement for predictability, being a source of legal uncertainty.

Notes

(1) See the Address no. 430 045 of 24 March 2010 issued by the Ministry of Finance – Directorate of VAT Legislation, available on website: www.abuzuri-tva.com/pdf/18-1.pdf

(2) See the Address no. 8351721 dated 4 March 2008 of the Ministry of Economy and Finance, National Tax Administration Agency, Directorate General for Tax Law and Procedures, available on website: www.abuzuri-tva.com/pdf/anexa1.pdf

(3) See Address no. 902036 dated 9 April 2010 of the Ministry of Public Finances – ANAF, Directorate General for Tax Methodologies, Taxpayers Guidance and Assistance.

(4) Published in the Official Gazette of Romania, Part I, no. 175 of March 13th, 2007.

(5) In 2007, Daniel Chițoiu, ANAF President at that time, said: "From January 1st, 2008, the reverse taxation on construction shall be eliminated. For real estate transactions carried out by legal and natural persons, a VAT of 19% shall be paid. But natural persons will not pay VAT on real estate transactions. It will be like now", quotation from the article "Rumors inflate the prices on estate real market", available on the website: http://imobiliare.rol.ro/. Sebastian Vladescu said, in 2007, for the Sfins: "it is a technical problem related to the nature of VAT, which is a special fee that may be imposed and deducted. The natural persons do not have legally that position at this time (in August 2006). You should look for attempt to correct. Technically, however, is not easy, because you can not just put it on the taxpayer to pay VAT, but also to give the right to collect. Here is the problem of VAT administration. It's a much more complicated problem, not represented today by the natural persons, in theory. Basically, if needed, they could represent" See "The fiscal authorities prosecute 7145 suspects of real estate offence, article available at website: http://www.sfin.ro/articol_19071/." According to the European directive harmonized with the new Tax Code, the natural persons must pay VAT if real estate transactions exceed EUR 35,000, unless there is a continuity of this activity, in order to make a profit. Although this provision is effective from the beginning of the year, our inspectors could not do so as implementing rules do not exist yet. We do not know how the statement will be and what papers should submit the taxpayer" said Maria Taran, the spokesman for DGFPJ Iasi. See "Construction on "natural persons" is a "trick" that the state wants to eliminate", article available on the website:http://www.financiarul.ro/2008/05/12/. (7) See Case Rotaru v. Romania, ECHR Decision – March 29th, 2000 available on website: http://www.scj.ro/strasbourg%5CROTARU-Romania%20RO.htm. For more details, see Corneliu Bîrsan, „Convenția europeană a drepturilor omului. Comentariu pe articole". Editura All Beck, Bucureşti, 2005, p. 674-676.

(7) This is the interpretation of European Court of Justice in the case law Van Time (C - 186/89) and MKG Kraftfahrzeuge - Factoring (C - 305/01), where the terminology used is as follows: "all stages of production, distribution and supply of services".

(8) The Directive no. 77/388/EEC of 17 May 1977, the sixth Directive on the harmonization of the laws related to turnover taxes – the common system regarding the Value Added Tax: uniform basis of assessment (published in the Official Journal L 145, 13.6. 1977, p. 1), as last

amended by Council Directive no. 2004/66/EC of 04.26.2004 (published in Official Journal L 168, 1.5.2004, p. 35).

(9) Council Directive no. 2006/112/EC of 28 November 2006 on the common system of Value Added Tax (published in the Official Journal L 347, 11.12.2006, p. 1-118).

(10) Available on website: http://eur-lex.europa.eu/.

(11) See the Court decisions of 26 March 1987, Commission/Netherlands, alin. (7), 235/85 Rec. p. 1.487 and 15 june 1989, Stichting, par. (10), 348/87 Rec. p. 1.737

(12) Available on website: http://eur-lex.europa.eu/.

(13) *Idem.*

INDIRECT TAXES AND SUBSIDIES - INFLUENCES ON PRICES

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Abstract. *In a market economy, property and private initiative in holding shares prevailing state intervention adds to the free play of competition in order to direct the production, prices and to help rebalance the market with prices, the indirect taxes or subsidies.*

Keywords: indirect taxes; subsidies; price; elasticity of demand; elasticity of supply.

JEL Code: H3.
REL Code: 8K.

Introduction

Elucidation of the problem concern price content requires a rigorous theory of value. In his "Value Economy: reconsidering conceptual", Professor Paul Bran made a critical analysis of the main previous theories of value bringing important contributions to the development and use of entropy theory of value.

1. The need for state intervention in prices and other levels

The mechanism of a modern economy involves three basic elements: demand, supply and price. Prices perform two major functions in the economic mechanism: provides information on economic activity and stimulate economic agents, acting in accordance with their interest to themselves, make the economic system to function effectively.

The mechanism of market economy is a competitive mechanism, and through his actions, competition reaches the public interests. To minimize this impact, the state intervention in terms of price is a reality in all countries.

State intervention in terms of price is likely to lead to all suppliers of goods and services by the strict necessity to set prices in a socially responsible manner, so as to become available to a wider audience and, above all, to the public which has a limited purchasing power. On the other hand, potentially dangerous products (cigarettes, alcoholic beverages) will be taxed higher, increasing public funds for the needs of society.

The state may intervene by setting fixed prices or price limits on some products (food consumer goods) or even use the generalized method of fixing the prices of all or most of the products. Also, he may proceed to a blockage of the prices they achieved a certain date, to ensure their stabilization and interrupted the inflation process propelled by price increasing.

It should be pointed out that not all forms of state intervention represent the case of complete suppression of the game market. Traders have the option of adjusting the quantity by changing the volume of goods produced or bought from the prices fixed by the state.

With the prices the state intervenes directly, but indirectly it can intervene and determine the price, demand and supply. Among the forms of indirect intervention, indirect taxation through VAT (taxes consume specific or general sales taxes), plays an important role in determining the price level.

Value added tax is an indirect tax, comprising all phases of the economic circuit, namely production, distribution services and sales to final consumers (inclusive). It should be determined on the transfer of assets and operations of the services. It is a fee that is charged, however the split, according to the value added at each stage of the economic circuit. The establishment of the ad-valorem or specific duties on a commodity that has not been taxed before, there is a supply curve shift to the left in properly placing a grant (specific or ad valorem) determine the supply curve shift to the right.

The characteristic evolution of supply and demand curves generates junctions of balancing, which are nothing more than the size of price.

Separate analysis of the effects of the settlement of indirect taxes or subsidies on the price involves deciphering their influence on the distribution of these impacts between producer and customer and their coordination by the state, which represents the institution set and their derogator.

2. The effects of the induction of indirect taxes on prices

By analyzing the resulting effects it can be observed that:

- settlement of a tax-and indirectly implies a reallocation of resources. This industry-manufactured goods on which tax has been placed suffers a reduction of production and, that is why, resources are redirected.
- the consumer pays a price that is higher than the initial price.
- the producers receive a lower price than the original price (Mosteanu, 2000, pp209-213).

3. Grant settlement effects on prices

The grant allocation by the government determine the supply curve moves down and the effects may be seen as follows:

- Government support the cost for increasing the production program;
- To produce the additional quantity, the units will attract grant recipient variable inputs;
- The consumer pays a lower price than the original price;
- The producer receives a price that is higher than the initial price (Mosteanu, 2000, pp. 209-213).

In **literature regarding** price and fiscal policy, present paper being part of it, a much-debated issue is related to responding to the questions of who bears the burden of indirect taxes?, Who takes advantage of the subsidy?

To answer these questions we make a case study at SC ANTIBIOTICS SA IASI.

The main method used to collect empirical material for this study was to analyze the data from that economic unit. For the company in question we analyzed the relationship between the price of sterile injectable products (powders and solutions) in vials and the quantity sold and price of same product and quantity required.

The study led us to conclude that those goods are goods to which the relative variation of the relative price and demand variation is proportional and opposite effect algebra. Behavior is uniform, the demand reaction is uniform and elasticity is unitary.

We also took into consideration the effects generated by introduction of indirect taxes and subsidies for financial support of export

It was not hard to see that the negative effects of the tax will be borne by both producers and buyers.

The proportion in which the tax is shared between producers and consumers depends on the slope of the demand curve (namely, the elasticity of demand in relation with price).

It follows that the burden of taxes that is paid by buyers is inversely proportional to the size of the elasticity of demand and directly proportional to the size of supply elasticity and

the burden of taxes which is responsibility of producers is inversely proportional to the elasticity of supply (in relation to increasing the price) and directly proportional to the elasticity of demand.

In other words, the more buyers are more sensitive to changes in prices (compared to sellers), the share of tax paid by them will be smaller.

In terms of subsidy, we found that the effects are opposite those caused by taxes levied by the state, they benefit both producers (due to increasing sales and reducing prices) and consumers (who can buy a larger quantity of goods at lower prices).

Therefore, the amount of increases and decreases in sales prices under the influence of indirect taxes and subsidies depends on the elasticity of demand and supply.

The study in question leads us to conclude that the most important problem facing a company is the fact that she does not have a clear idea of the slope or shape of the demand curve for each product. This means that it can not rigorously determine its marginal costs and revenues.

Demand curve shape depends on several aspects, such as the amount of money the consumer has and the prices set by the producer and that together define the purchasing power in relation to which the demand of consumer will be greater or smaller; the consumer's preference system; the limited capacity of firms to test market reaction on a permanent basis at different prices (in such a situation is, as a rule, large companies that produce and sell products very expensive); range ability of companies to test market reaction to permanently different prices (talking here about companies that produce and sell goods for current consumption, less expensive, for which the demand curve will take a different form); capacity of firms entering the market etc. Therefore, we can say that any price set by a company, directly or indirectly, takes its toll on the level of demand, ultimately, the price representing the extent to which the consumer is willing to accept him.

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REGARDS UPON EVOLUTION OF UTILITY THEORY- THE FUNDAMENTAL ELEMENT IN PRICE ESTABLISHMENT

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Abstract. *The purpose of an economic activity is consumer satisfaction. Therefore, production activities, decisions and actions of entrepreneures have as a reference consumer needs, preferences and behavior which must be taken in consideration by manufacturer's goods. The analysis must take into account consumer preferences and budgetary constraints wich he faced. Analysis of consumer behavior is achieved through two distinct approaches: one of cardinal and the other of ordinal utility. The purpose of this paper is to explore these approaches.*

Keywords: consumption; utility; marginal utility; budgetary constraints; consumer equilibrium.

JEL Code: D11.
REL Code: 7B.

The consumer is a trader who's basic characteristac is aquisition and consumption of goods, from a given disposable income. He maintains relationships with other operators through various operations. Thus, the consumer is related with businesses by providing labor and therefrom, remuneration but also through the purchase of products and prices that he agrees to pay in exchange.

With a limited income, the consumer is constrained to take rational decidions and define its judicious expenditure pattern. The consumer can be an individual or a community (ex. a family), in which case we consider the overall revenue and expenditure. To simplify the analysis below we always argue with regard to an individual. Consumers use their wages to buy diffrent goods and get a certain satisfaction in using them. The question concerns in choosing to buy quantities of various goods that are offered on the market, depending on tastes, preferences and budget available.

Among the needs that may have a consumer this microeconomic analysis is interested only of economic needs, that means needs wich can be satisffed by an economic transaction. Thus, we may not consider traveling in time as an economic need, because such a need may not be satisfied by any economic transaction today. Conversely, drinking aplle juice is an economic need, because this need can always be satisfied by market purchase and consumption of this juice.

The economic needs can be satisfaced by the consumption of economic goods. These assets can be defined in two different ways:

1) A good is economic if it can be a settlement of a sale transaction. Under this definition, economic goods are comodities. There are also free goods available in unlimited quantities wich can be purchased at a price zero, although the satisfaction they offer to a consumer is not at all neglegtible (sea water, air, beach sand, etc.).

2) Economic goods are those goods that may be subject to mass production, those that can be reproduced at any time. If you remember the definition exclude all unreproductibile goods, such as, for example, art works, old wines, although satisfaction that their proxy holders are particularly high.

Economic literature offers us two completely different answers to the same question: why the economic assets could be changed in a cetain proportion and have the same price?

The first is like "because the goods have the same utility" and the second is formulated as follows: "for their production inputs require the same amount of work". These two responses occurred in two distinct theories: the theory of utility (belong to neoclassics) and the theory of labor value (developed by classical economists).The essential difference between the two theories derived from the element choosen as a starting point in their development: the utility of goods, which keeps the value of general, in the first case, and value, transform the shape exchange value in the second .

Neoclassics operate with a new method, wich is the principle of margin of the last unit. Under this methodology, they build two typical models: one of producer and one of the consumer to which we refer in this study (both of them).

Western economic literature abounds in works dealing theoretic utility prices. The present study has the same field of interest. To explain the mechanism of price formation, in utility theorists view, I refer briefly to some of the economic categories required for this approach.

Utility is a quality of economic goods wich measures overall satisfaction that a consumer feels in consuming them. We must distinguish between total and marginal utility. Total utility level depends on the quantity consumed of good x, so U = U(x).

Marginal utility of good x (Umx) is supplement utility of additional units of this good (ceteris paribus). In other words, the marginal utility measured changes in total utility (U) due to consumption of additional units of the given object. Using marginal utility can determine how evolving consumer satisfaction while consuming an increasing amount of good x. Satisfaction depend on how intense is the need for consuming: the pleasure felt is proportional to the prior lack for consumption.

Since the intensity of needs decrease as quantity consumed increases, that is a principle of decreasing marginal utility, that if the intensity decreases with the amount consumed need satisfaction obtained for each additional unit consumed is less important than unit consumed above.

This law was formulated in 1854 by economist Gossen, representative of neoclassicism, which showed that the first glass of water consumed by a traveler in the desert procure him a huge utility, the second cup will bring a bonus of lower utility and so on.

The same economist becomes famous in formulating the principle of maximizing the satisfaction of needs, according to which, the maximum welfare, is obtained by an individual satisfying a fraction of each of its needs in order to equalize their respective contributions to the whole overall satisfaction.This second law finds its concentrated expression in neoclasic's vision, in the principle of equalizing marginal utility of goods. Therefore, although increasing the total amount of utility even if the consumption continues to grow (albeit more slowly), the marginal utility decreases continuously. As a result, although increasing the total amount consumed utility continues to grow (albeit more slowly) and the marginal utility decreases continuously.

When marginal utility is zero, total utility will be at its peak, because continuing to increase our consumption, that doesn't mean automaticly that total utility will grow, by contrast, may decrease as the saturation point beyond the consumer's marginal utility of good x becomes negative, meaning that satisfaction turns into dissatisfaction. Thus, a consumer maximizes his utility by adjusting the total quantity of good X purchased until the marginal utility of the last unit purchased equals zero.

The key issue in the economic calculations is to ensure maximum consumer satisfaction (utility) in the restrictive conditions imposed by:

- Limited resources and considered exogenous to the consumer;
- Certain preferences and needs to define consumption;
- The level of market prices considered exogenous factors for consumer calculation;
- In economic theory it is estimated that consumer's balance situation for a given level of resources available and the price level is obtained when the utility is maximum. That

structure of consumption that, for a given income, ensures maximum consumer utility is called optimal.

Take the case of a consumer who must choose between goods X and Y, which have prices px and py. Total utility will be at its peak when he will allocate income between two goods so that additional utility obtained by consuming that quantity of X for wich has been paid a further monetary unit is equal to the additional utility obtained from consumption of that quantity of Y for wich has been paid the same additional monetary unit. In this situation, we say that the marginal utility per monetary unit for good X is equal to the marginal utility per monetary unit for good Y. In this case, the consumer is in a state of equilibrium, because he no longer can increase total utility by giving up the purchase of good X for good Y.

What if the asset price X decreases, ceteris paribus? In this case, the individual will increase the utility consuming more X and less Y. But if you consume more X , Umx decreases but also decreases the marginal utility per monetary unit until earlier equality will be restored.

Finally, a good price reduction will lead, ceteris paribus, to an increase of demand for the asset, so that demand curve is decreasing from left to right.

For exemple if Umx = 10, Umy =15, px = 2, py = 3, consumer is in equilibrium, he has maximized total utility.

If px is reduced by 1 u.m. and X consumption suffers no changes, then, per monetary unit, we have 10 units of Umx and only 5 units of Umy. In these circumstances, spending an addtional monetary unit for good x the consumer increases its utility by 10, but if he spends the same currency unit for good y, its utility increases only by 5. Therefore, a rational consumer will not buy good x and good y.

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FISCAL VULNERABILITY vs. FISCAL SUSTAINABILITY: THEORETICAL BACKGROUND*

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Abstract. *The aim of this study is to present the theoretical background for the concepts of fiscal vulnerability and fiscal sustainability. The distinction between them is very thin and accounts for the time horizon. For assessing the state (vulnerable/sustainable) of fiscal policy, it can be used few indicators. Applying them for the case of European Union members, it was shown that Belgium and Italy confronts with a vulnerable fiscal policy. In such situation, it is imperative for the governments to take fiscal adjustment measures to avoid an unsustainable fiscal policy in the long run.*

Keywords: fiscal policy; public debt; primary balance; fiscal vulnerability; fiscal sustainability.

JEL Codes: E62, H5, H6.
REL Codes: 8K.

1. Introduction

Recent studies (Fatas, Mihov, 2009, Afonso, Agnello, Furceri, Sousa, 2009) have shown that over the period 1970-2007, fiscal policy in the euro area has been mildly pro-cyclical, and the adoption of the common currency and the constraints imposed by the SGP have not had a large impact on the cyclical behavior of the structural balance. Moreover, in the last 30 years, fiscal position has not significantly changed for most of the European countries. In addition, there are studies that revealed that fiscal policy within European Union (EU) is unsustainable in the long run. In that sense, Afonso (2000) showed that before adopting Stability and Growth Pact (SGP), fiscal policy was not sustainable for most European Monetary Union countries, excepting Germany, Austria and Netherlands. An additional recent study, also, pointed out the same sustainability issues for all 27 members of EU (Afonso and Rault, 2008). There are other studies that predict that current fiscal policies of most EU countries based on growing social spending will become unsustainable in the future (Corsetti, Roubini, 1996, Alesina, 2000, Kotlikoff, Hagist, 2005). More recently, Balassone et al (2009) showed that countries currently recording high fiscal surpluses (Finland) or have undertaken more important structural reforms to their pensions systems (Germany, Austria and Italy) tend to experience lower sustainability risks. But according to the indicators calculated by the authors, most of the Euro countries will have to adjust their fiscal policies sooner or later.

All these previous studies indicated that fiscal policy of EU countries is vulnerable, and the recent financial crisis emphasized that issue, too. A vulnerable fiscal policy could be the main cause of domestic financial crisis or could be a transmission mechanism that helps the contagion effect to be globally spread out. Much more, a vulnerable fiscal policy can lead to difficulties on achieving its sustainability in the long run.

But, what is in the fact the difference between the concept of *fiscal vulnerability* and *fiscal sustainability?* What is the interrelation between the two concepts, and how does it reflect on macroeconomic level?

There are many studies focusing on the topic of fiscal sustainability. There are only few studies dealing, exclusively, with fiscal vulnerability (see in that sense, Hemming and Petrie (2000), and Hemming et al (2003)).

* The author wish to express her gratitude for the helpful comments and guidance to Professor Nicolae Dardac (Bucharest Academy of Economic Studies).

The aim of this study is to present the theoretical background of *fiscal vulnerability* and *fiscal sustainability*. Section 2 consists in such theoretical aspects. Section 3 is devoted to some detailed explanations considering the interrelation between the two concepts. In Section 4 there are used few indicators for assessing the vulnerability/sustainability of fiscal policy. The last section consists in the concluding remarks of this study.

2. Theoretical background of fiscal sustainability and fiscal vulnerability

Metaphorically speaking, sustainability of fiscal policies means "a good management" of financial resources within public budget. Blanchard (1990), and Blanchard, Chouraqui, Hageman, and Sartor (1990) considered that fiscal policy is sustainable when (i) public debt does not explode, nor governments are forced to increase taxes, decrease spending, monetize fiscal deficit or repudiate public debt, or (ii) public debt, as ratio of GDP, converges to its initial level. Zee (1987), Horne (1991), Buiter (1995), Chalk and Hemming (2000), de Castro Fernandez and Hernandez de Cos (2000) improved Blanchard's definition of fiscal sustainability, by adding the *solvability* criterion. In that sense, it is considered for a government to be solvent when present value of future primary surpluses equals the current level of public debt. But solvency criterion represents only a necessary condition for a fiscal policy to be sustainable in the long run (Horne, 1991, p. 1).

Consequently, a solvent government implies public debt reimbursement in the long run by not changing the current fiscal policy (Artis, 2000, Croce, Juan-Ramon, 2003). Along with all that mentioned, it also could be recalled the views of Hamilton and Flavin (1986), Chouraqui, Hagemann and Sartor (1990), Blanchard (1990), Gramlich (1990), Horne (1991), Buiter (1995). According to their opinions, fiscal policy is sustainable when public debt as ratio to GDP does not increase faster than the gap between real interest rate and real growth rate.

Practically, fiscal policy is considered sustainable if governments have the ability to generate future primary surpluses as to meet all the financial needs encountered by current contracting out public debt, without any fiscal adjustment measures have to be taken.

Considering the concept of *vulnerability*, previous studies mostly account for the vulnerability of the economic system instead of fiscal policy. In that sense, Furman and Stiglitz (1999) define a vulnerable economy based on the increased probability that the economic system is not able to absorb all the shocks (speculative attacks on national currency) and to transform them into systemic risk (Furman, Stiglitz, 1999).

Allen et al (2002), Rial and Vicente (2004) view the concept of *vulnerability* in correlation with the concept of fiscal sustainability. According to them, the economy is vulnerable when there is a liquidity or solvency risk.

Brixi et al. (2000) bring into attention the concept of *fiscal risk* related with the government's ability to meet all its payments. Any change that goes to an increase of these government payments induces a certain risk and could generate excessive fiscal deficits and public debt stocks.

Hemming and Petrie (2000), and Hemming et al. (2003) focus on the concept of *fiscal vulnerability*. They define fiscal vulnerability considering the government's ability to achieve its macroeconomic objectives, such as: (i) avoiding excessive fiscal deficits and publics debt stocks that can threaten macroeconomic stability in the short run and fiscal sustainability in the long run; (ii) designing a flexible fiscal policy that assures the immediate reaction to domestic and external disequilibrium; (iii) assuring stable and proper taxation rate that allows for collecting sufficient fiscal revenues for the public budget (Hemming, Petrie, 2000, p. 5).

Considering all the previous mentioned, it could be stated that fiscal policy is *vulnerable* when government is not able to generate anymore current primary surpluses to meet all its financial needs without increasing the taxation rate, without reducing the governments spending, without contracting public debt.

3. Interrelations between *fiscal sustainability* and *fiscal vulnerability*

Generally speaking, the two concepts refers to the government's ability o generate primary surpluses as to meet its financial needs. The difference between fiscal sustainability and fiscal vulnerability is very thin and requires more details, along with the explanation of the interrelationship between them. In that sense, there are some fiscal indicators: budgetary balance, primary balance, or public debt as ratios to GDP that could be used for assessing the state of fiscal policy (it is vulnerable or sustainable). Large fiscal deficit and excessive public debt stock can be considered as first clues that signal the

vulnerability of fiscal policy in the short or medium term. If governments do not interfere by taking fiscal adjustment measures to restore fiscal deficit and public debt stock to cautious levels, then there is an increased probability that fiscal policy to become *unsustainable* in the long run. It is like the situation when an individual could become sick. If he/she sneezes once or twice there is a probability of 50% to have a simple runny-nose or a severe cold. If the symptoms are worsening and getting more serious (coughing or high fever), the probability that individual becoming much sicker is larger than 50%. How individual should have reacted in this situation. He/she could apply some treatment since the first sneezes to increase his/hers immunity, and consequently to reduce the risk of becoming sicker. Or, to continue his/her daily activities, waiting for other symptoms to show up! In this situation, the risk of getting a much severe cold is higher.

What is the analogy between previous parable and the case of fiscal policy? Deteriorated fiscal indicators could constitute the first "sneezes" of a *vulnerable* fiscal policy. When government will not have the most appropriate reaction to such a situation, this could lead to *non-sustainable* fiscal policy in the long run.

Deteriorating fiscal indicators refers to increasing fiscal and primary deficit, and to excessive public debt. All these can lead to difficulties of financing government spending. Consequently, governments have to face solvency issues. In these circumstances, fiscal policy can be assessed as vulnerable, and could become unsustainable in the long run if governments did not take fiscal adjustment measures.

Krejdl (2006) emphasized that *fiscal sustainability* is a *forward-looking* concept, and historical data could give some related insights. Considering Krejdl's point of view and all the previous mentioned, it can be stated that the difference between the two concepts is given by the *time horizon* accounted for[(1)]. Therefore, *fiscal vulnerability* can be viewed as *backward-looking* concept. In the sense, an analysis of historical data can give useful information for assessing the vulnerability state of fiscal policy. If fiscal policy proved to be vulnerable in the past, then there is a large probability that running the same policy can lead to an unsustainable fiscal policy in the long run.

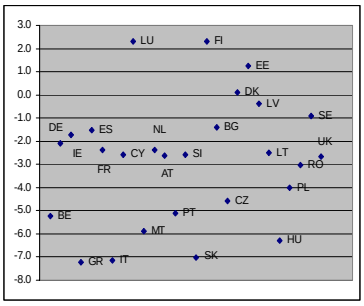
But, which are the signals that can indicate when fiscal policy is vulnerable? Previous, it was mentioned the idea of "deteriorating" fiscal indicators. But, it has to be made the distinction between business cycle deterioration and non-healthy fiscal policy deterioration. For instance, Chuhan (2005) considers that public debt as ratio to GDP can be used for assessing government solvency. But it does not capture all the insights related to government ability for making payments. Much more, there is the possibility that public debt stock to increase as a consequence of government strategy to invest more[(2)]. In that sense, it has to be analyzed if these investments lead to future economic growth. Even so, contracting more public debt will generate financial payments that put some pressure on current public budget.

Consequently, the difference between *fiscal vulnerability* and *fiscal sustainability* is very thin! Both of the two concepts refer to governments ability to generate primary surpluses as to meet its financial needs. The distinction is made by the time horizon considered. A vulnerable fiscal policy generated large fiscal deficits and excessive public debt ratios that currently cause payments difficulties. Allowing for the same fiscal policy in the future, too, will create all the necessary conditions for the policy to become unsustainable in the log run.

4. Assessing the state of *fiscal vulnerability/sustainability* within EU

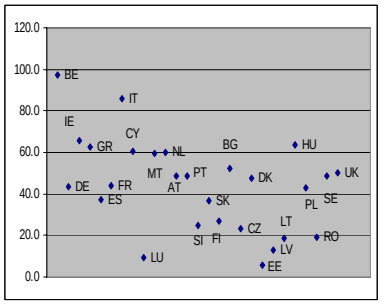
Considering for "the thin red line" between fiscal vulnerability and fiscal sustainability, establishing the moment when a vulnerable fiscal policy is about to become unsustainable is very difficult. There are some indicators that can be used for assessing the state of fiscal policy: budgetary balance as ratio to GDP (*d*), public debt as ratio to GDP (*b*), primary balance as ratio to GDP (*p*), and the gap between the real interest rate and the real growth rate (*gap*). These indicators will be estimated using annual data for all the EU member states. The data is available from AMECO and considers 2008as an ending year[(3)].

Related to the size of budgetary balance and public debt, Balassone and Franco (2000) account for the article from Maastrict Treaty that sets the balance to 3% of GDP and public debt to 60% of GDP. The two authors point out that achieving the two required criteria allows for fiscal discipline and flexibility and excludes any bias from an unsustainable fiscal policy (Figure 1 and Figure 2).



Note: *d* was estimated as an average of annual data for budgetary balance.

Figure 1. *Budgetary balance distribution (d) for EU-27*

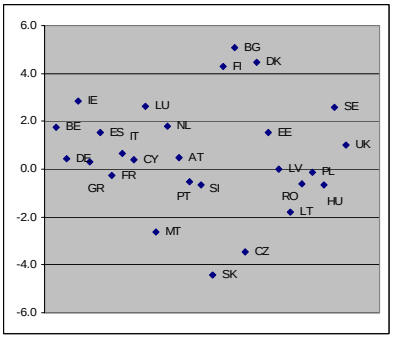


Note: *b* was estimated as an average of annual data for public debt.

Figure 2. *Public debt distribution (b) for EU-27*

A simple statistical analysis brings into attention that for 10 out of 27 cases (37%) budgetary deficit was larger than 3% of GDP. For 48% of European states, budgetary balance was below than 3%, and only 15% countries recorded budgetary surplus. Related to public debt ratio, only 22% of European countries had ratios larger than 60% of GDP. The rest of the countries had ratios between 40%-60% of GDP (40%); between 20-40% of GDP, respectively below 20% of GDP (five countries). Even there are many countries that crossed the convergence criteria, and in depth analysis will be more useful, considering the ability of governments to run large fiscal deficit. On the opposite way, there are countries that can confront difficulties running a small fiscal deficit or having a small public debt ratio. Consequently, the state of Balassone and Franco (2000) could be reconsidered in the sense that crossing Treaty criteria can indicate a vulnerable fiscal policy in the short and medium term that could eventually lead to an unsustainable policy. Moreover, it can be account for many other indicators that can give useful insights related to the state of fiscal policy.

In that sense, it could be used primary balance. Primary balance is a relevant indicator for assessing governments' ability to generate financial surpluses as to meet the financial needs implied by government spending (Figure 3).

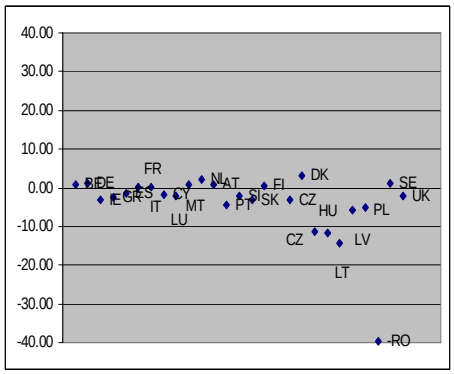


Note: *p* was estimated as an average of annual data for primary balance.

Figure 3. *Primary balance distribution (p) for EU-27*

There is no benchmark for evaluating the primary balance. But it can be consider the situation when it runs a deficit or a surplus. In the case when a government runs large fiscal deficit and public debt is increasing, it should generate some primary surpluses to meet its public debt liabilities. The data show that for 59% states, primary balance had a surplus and for 41% cases, primary balance ran a deficit.

Another indicator that can be considered for assessing the state of fiscal policy is the gap between real interest rate and real growth rate (*gap*). A government should not indebt itself at a cost higher than the economy capacity to produce (Figure 4).



Note. *gap* was estimated as difference between average annual real interest rate and average annual real growth rate.

***Figure* 4.** *Gap distribution for EU-27*

The benchmark in this situation is to check if *gap* is positive or negative. When there is a positive gap, real interest rate is higher than real growth rate. This situation is not wanted especially when the government runs large fiscal deficit and high public debt ratio, and it has no ability to generate primary surpluses. For EU member states, in 63% of the cases, the gap is negative.
Considering all the above mentioned, it will be analyzed the situation of those countries that crossed Maastricht Treaty constraints, and whom fiscal policy can be assessed as vulnerable (Tabel 1).

Table 1

European states with a *vulnerable* fiscal policy

Indicator/Country	BE	GR	IT	HU
d	-5.2	-7.2	-7.1	-6.3
b	97.3	62.4	85.9	63.6
p	1.7	0.3	0.7	-0.6
gap	0.8	-2.5	0.2	-5.9

In the case of Belgium (BE), fiscal deficit is larger than 3% of GDP and public debt ratio is higher than 60% of GDP. But even so, its government has the ability to run primary surpluses. Nevertheless, Belgium's situation could be considered carefully, due to the positive gap, meaning that Belgium indebted itself at a cost higher than real growth rate. In this situation, the government has to run sufficient primary surpluses as fiscal policy not to become unsustainable in the long run. Similar comments are, also, valid for Italy's case (IT). In the cases of Greece (GR) and Hungary (HU), fiscal deficit is very large as well as public debt ratio. Unlike the situation of Belgium and Italy, the gap is negative and they ran primary surpluses or had small primary deficits. But, even so, this strategy could be very risky, because there is a temptation to indebt more and more, and the illusion that indebtedness is cheap (at low interest rate) could make governments to become much greedier. Consequently, fiscal policy could become vulnerable and affect its sustainability in the long run.
Sustainability concept is very convenient for the governments, but not considering a finite time horizon. In this situation, governments tend to avoid unpopular fiscal adjustment measures and indulge in promoting a vulnerable fiscal policy that can have negative impact on the economy.

5. Concluding remarks

The recent financial crisis brought into governments' attention the importance of making use of fiscal policy as a tool for restoring the macroeconomic equilibrium. But, the economic crisis, also, revealed the vulnerability of fiscal policy by not having the ability to absorb the shocks. The aim of this paper was to present the theoretical background related with the concepts of fiscal vulnerability and fiscal sustainability. Their content is very similar and refers to government's ability to generate primary surpluses as to meet its financial needs. The distinction between the two concepts is very thin and accounts for the time horizon. Fiscal sustainability is a forward-looking concept and considers a long time horizon. Compared to it, fiscal vulnerability is a backward-looking concept and is related with the past performances of government's fiscal policy. The state of fiscal policy (vulnerable/sustainable) can

be assessed using some indicators: budgetary balance, primary balance, public debt ratio, and the gap between real interest rate and real growth rate. Analyzing these indicators for the case of European Union member states, it can be stated that only few countries confronted with a vulnerable fiscal policy. The situation of Belgium and Italy can be assessed as a difficult one, while Greece and Hungary confronts with a vulnerable fiscal policy.

Acknowledgements

This work was cofinaced from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/89/1.5/S/59184 „Performance and excellence in postdoctoral research in Romanian economic science domain".

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STUDY ON METHODS OF SOLVING AN ADMINISTRATIVE APPEALS AGAINST TAX ACT

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Abstract. *Administrative appeal shows a particular utility is a filter in that procedure, and so loaded that release role of administrative courts.*

The decision that the complaint is resolved takes the form of an administrative act which has the legal nature of a unilateral administrative act (of authority) of individual.

How to deal with a dispute will be illustrated from a real situation on the appeal against the decision to impose additional tax payment obligations established by the tax.

Keywords: tax litigation; appeals; administrative action; tax; tax decision; the tax audit report.

JEL Codes: H32, K19, K34.
REL Codes: 5D, 8K.

Introduction

We find ourselves in the process of integration of the tax legislation on the basis of a market economy and to achieve harmonization with the EU fiscal-legal world, process which attracted a large legislative turnover, which is why there are numerous difficulties regarding the proper application of fiscal and legal norm in time, space and, especially, to the people. In these extremely complex conditions, the litigation tax is the most important means of achieving fiscal equity available to the taxpayer or legal person by which it can defend its rights and interests in the abuse of dominant power of the administrative bodies of tax. Without impeding the free access to justice, the taxpayer should be addressed, by way of administrative appeal procedures, tax administrative bodies in an attempt to resolve the conflict situation. Realizing this way a procedural compatibility with the institution of administrative litigation, which derives its existence, the legislature intended to postulate the introduction of compulsory administrative appeal prior to referral to court.

At present, perhaps more than in the general administrative litigation, I believe that administrative appeal procedural utility tax remains in a context where it is treated as Romania's Constitutional Court ruled, after long search theory, as a purely administrative appeal, without legal charge.

Research methodology

Article illustration is based on a means of resolving a dispute that will illustrate a real case from the appeal filed by a taxpayer against a tax administrative act: the decision to impose additional tax liabilities established by the tax payment issued under The tax audit report.

Documentary sources of information listed in the bibliography are applied in the field of tax obligations, but also literature in the field of tax litigation.

1. Possibility of appeal

GEO no.13/2001 established a single administrative channels for review - appeal - which could require the reduction or cancellation, as the case of taxes, customs debt, contributions to special funds, the delay increases or penalties or other amounts found and applied and other measures ordered by the MPF acts authorized by law to carry out the audit or tax.

According to Article 209(1) Tax Procedure Code adopted by GO no. 92/2003, the appeal may be "taxes, fees, contributions, customs duty, and accessories (with accessories claims means that the default budget calculated in accordance with the law) their". Corroborating this text with articles 205(1) and 209(2) that the appeal is subject to administrative act as defined in article 41 of the Fiscal Procedure Code. Under article 205(4) prescribing that can be challenged under par. (3) thereof, and the assessments which are not set taxes, contributions or other amounts due to general government. Also, article 206(2) states: "The purpose is to appeal only the amounts and the measures established by the fiscal body in the title of the claim or the contested administrative act, except an appeal against the refusal of issuing the administrative act unreasonably tax"

From the interpretation of legal text last quoted refer to two very important consequences. This is, first of all, that in addition to the administrative tax appeals can be the object of unjustified refusal to issue an administrative act required by the tax payer and, secondly, that by administrative procedures shall be may challenge not only the amounts stated in the tax administrative body, but it measures ordered by the administrative acts.

As regards the legal nature of income subject to budget dispute, article 1(1) Fiscal Procedure Code states that it "regulates rights and obligations of the fiscal and legal relations concerning the administration of taxes due the state budget and local budgets, provided Fiscal Code", so clear from reading this text that the legislature intended to regulate a single remedy, whether disputed revenues are allocated to the state budget or local budgets.

An exception to the amicable dispute appeals on fines, forfeitures and other complementary measures imposed by legislative bodies of the MPF, they are subject to the provisions of GO no. 2/2001 on the legal regime of contraventions, which devotes a special path of attack, namely a contravention complaint (Dascalu, Alexander, 2005) .

The Fiscal Procedure Code legislature gave way only appeal against fiscal administrative acts that justify the law, without any justified and legitimate interest and that in this matter, it is possible splitting up the interest and the interest of law, because if "the current law is born, then the interest is born today" .

2. The decision to settle the complaints – form and content

Although the initial version of the Fiscal Procedure Code stipulate that any competent body, the appeal is settled by reasoned decision, Law no.174/2004 changed the original text of article 174(1), introducing the resolution dichotomy appeal either by decision or by the provision, no text in this bill are not specifying which bodies responsible adoption of these two categories of acts tax administrative .

Clarify it was not until later, rules for the application of GO no. 92/2003 edict that review procedures, the competent organs of the ANAF settlement ruling by the decision, and the local public administration authorities shall decide by order.

Consequently, when it comes to challenging administrative acts which concern the allocation of state budget revenues, the case shall be settled by decision, as long as, when the disputed administrative acts which refer to the local budgetary revenue, the appeal provision shall be settled by. Considering the fact that the legislature did not intend to create any legal distinction between the regime and the decision to resolve the dispute, referring to the legal and most often only to the decision, discussed all aspects of the decision are properly applied and provision, which makes it unnecessary to separate the latter approach.

As regards the decision as it is noted that having the legal nature of a tax administrative act, the written form is needed for the exteriorization will administrative body (Drăganu, 1970), something that emerges from the interpretation of Article 211 of the Fiscal Procedure Code.

The decision will resolve the appeal is final executive review system. As noted in our literature specialist, an indication made by the legislature under article 210 (2) Fiscal Procedure Code is a good omen, bringing a touch of legal clarity, therefore not leaving instead an interpretation that could lead to the conclusion that, as final against the decision may only exercise the outer path of attack appeal. At present, there can be no doubt that it can bring proceedings against administrative appeal, and appeal not only to appeal.

In assessing the legal nature of the decision which the appeal is settled, based on the legal nature of proper administrative appeal or an administrative-judicial review that takes the appeal, the doctrine is not unanimous. Thus, a first opinion (Puie, 2007, Deleanu, 2007), it is estimated that this would be an administrative act issued after following a judicial review of administrative-judicial procedures, the conclusion drawn from the grounds of its obligation, of similar tripartite judgment content and that this way of the competent organ shall settle a dispute after referral peculiarity. In another theoretical approach, taking into account the opinion of real authority (Drăganu, 1970) expressed decades ago about the appeal against the budget debt, it may be reasoned that the decision of the competent organ to resolve the complaint can only be an administrative authority as the administrative body before tax as part of active financial administration, settled the complaint by ordinary working methods of public administration, principles of adversarial not giving the efficiency and independence.

The development was based on an adversarial procedure based on the parties having the opportunity to discuss all the opposition proceedings, the awarding body in the delivery solution is independent from both parties and to other persons or bodies of state power bodies including executive functioning normally on the basis of irremovability, one of the fundamental guarantees of independence (Deleanu, 2007), key features that motivated the decision once the soil.

Realizing match them with the provisions of Articles 41 and 43 reprinted Fiscal Procedure Code, it is settled that the decision of an administrative appeal takes the form of tax, which is, as stated, the legal nature of a unilateral administrative act (the authority) of individual .

3. Example of solving the appeal decision

To illustrate the resolution of a dispute arising from it will illustrate a real situation on the appeal filed by a taxpayer against a tax administrative act (decision to impose additional tax payment obligations established by the tax) .

The data of this example are as follows:

The taxpayer in question is identified below by name “SC ABC SRL”. Romanian legal entity is organized in accordance with Law no. 31/1990 republished on companies in the form of limited liability company, identified by the fiscal code RO attribute and is paying monthly VAT establishment. Taxpayer’s main activity is the production of certain materials, then subjected to intra delivery. It is noted that SC ABC SRL sought to resolve the negative balance amount of VAT refund option included in the statement of October 2008 in the amount of 130,430 lei, the statement made and recorded in the public finance in legal terms. It also mentions that the negative balance of VAT refund is requested for the most part generated by the taxpayer to the tax treatment applied to operations, namely production of materials and their subsequent delivery - delivery considered as intra-taxpayer.

Starting from this premise that operations are exempt operations with right of deduction under the provisions of articles 143(2), letter a) of Law no.571/2003 regarding the Fiscal Code, as amended and supplemented, in conjunction with the provisions OMFP no. 2222/ 2006 instructions for the application for approval of VAT exemptions for transactions referred to in article 143 (1), letters a)-i), article 143 (2) and article 144^1 of Law no. 571/2003 regarding the Fiscal Code, as amended and supplemented (published in Official Gazette nr.1043/29 December 2006). Specifically, to qualify for VAT exemption applied to those operations, intra-community supply must be to a person communicating with a valid VAT

registration, issued by the tax authorities of another member state and the delivery date that, by its very its definition, involves goods dispatched or transported from one member state to another member state by the vendor or the person to whom delivery or by another person on behalf .

Following the partial tax audit, tax auditors have issued tax-inspection report, which was established in December 2008:

- VAT additional fixed amount of 187,451 lei, of which 17,575 lei of VAT deducted by the operator without the basic documents and 169,876 lei of VAT collected additional tax auditors, because the trader did not justify exemption from VAT charged intra-EU deliveries
- increase the delay associated with VAT, the sum of 1,426 lei

How did the establishment of additional VAT on such supplies by collecting them?

They include the following:

For intra-community supplies of goods under the provisions of article 10 of the OMFP no. 2222/2006 mentioned above, the operator was required to justify the exemption from VAT with the following documents :

- invoice must contain the information prescribed in article 155(5) of the Tax Code to be mentioned in the registration code assigned buyer for VAT in another member state;
- document certifying that the goods were transported from the Romania in another member state;
- other documents (the contract/order of sale/purchase, insurance papers).

During verification, according to the invoices issued, the taxpayer has made deliveries to companies of intra-EU countries, VAT and identified as such by valid VAT code assigned by the tax authorities of the member states concerned. Thus, the first condition (ie valid VAT code) was observed. At least at the documentary. Were submitted and presented tax inspection bodies according to their commercial contracts and transport those materials in the EU member states is the client, based on the agreed delivery conditions – EX WORKS.

As regards transport documents filed with regulatory authorities during a tax audit inspection – in this case CMRs (as is done with the transport of vehicles) – they were presented a copy and, moreover, had a number of shortcomings, including most important being that they were not inscribed by the client acknowledge receipt of the goods transported. This was the main argument which led to the establishment of additional VAT by tax auditors on those operations.

Against the decision to impose additional tax payment obligations established by the tax authorities issued tax audit report under the taxpayer filed the complaint to the competent tax deadline, for 171,302 lei consisting of 169,876 lei lei, VAT collected additional bodies tax audit and 1,426 lei, representing increases of delay related to VAT. Additional amount of 17,575 lei established by inspection report tax deducted by the operator of VAT without being based on evidence, was not contested by the taxpayer, it pretending determination. Also, when submitting the appeal, the taxpayer filed and a copy of the CMRs filled with “Commodity Receipt” section 24.

In its appeal, the taxpayer argued that “tax auditors incorrectly calculated the amount of VAT 169,876 without taking into account the shipping documents were made available for the period of tax inspection that CMRs for transportation of goods delivered CMRs which are attached to this dispute (...).As the amount of 1,426 lei, representing increases related VAT payment, consider that the object no longer collected as VAT tax auditors in the amount of 69,876 lei is not justified and therefore the right accessories spade”.

Subsequent to submission of the appeal, issuing fiscal body of the fiscal administrative act under the legal provisions drafted a report containing the views across the arguments in support of the appeal by the taxpayer, report submitted to the competent body for resolving disputes.

Following analysis of submissions and documents submitted by the parties at this stage, the competent body for settling disputes, the contents of the appeal decision on the settlement filed by the SC ABC SRL, states the following:

"In support of the appeal the company filed CMRs completed copy of the cargo "Commodity Receipt" and tax auditors, in the essay with the proposed settlement, on the documents supporting the case brought by the petitioner, states that the petitioner does not present sufficient evidence at the appeal to remove doubts concerning the transportation of goods and does not meet condțiile for exemption from VAT and that the destination account as outside Romania. Since the documents attached to the case file could not establish if the company meets all the requirements to qualify for exemption with credit provided by law, it was decided that the inspection, by following a detailed analysis of all existing documents to determine whether the company these operations satisfy the conditions to qualify for exemption with deductibility.

Given the foregoing, and considering the fact that the petitioner has submitted a copy of the completed CMRs the cargo "Commodity Receipt", solving complaints bodies can not rule on the legality of VAT amounting to 169,876 additional Lei, corresponding increases in the amount of 1,426 lei. Therefore, consequently, for the reasons shown above, this part of the decision requires the abolition of tax issued under the tax audit report and will end tax a new administrative act. (...).

Within 30 days of notification of this decision to withdraw, tax authorities will review the facts on the tax obligations of society contest according to relevant documents in this case, the applicable legal requirements and those specified within the Decision and the provisions of section 12.7 and 12.8 of the Instructions on the application of Title IX of GO no. 92/2003 regarding the Fiscal Procedure Code, republished, approved by Order no. 519/2005."

Therefore upon the decision, the tax auditors have undertaken a new tax inspections at SC ABC SRL.

Given that the initial reason for a tax audit that led to the establishment of additional value-added tax has been linked to allegations concerning the transport of intra-route as mentioned earlier, under the action of the tax audit, the tax authorities have done to written requests for cross-checks.

Those requests were addressed to the competent tax structures and economic target carriers registered in the transport documents (CMRs) for the taxpayer to verify that the supporting documents of performing intra-route transportation.

Responding to these requests were intended to confirm or deny that transports the carriers enrolled in these documents.

Responses follow the prompts to perform cross-checks, was found that:

- most of the transport carriage in the documents under scrutiny proved wrong in the sense that economic agents have confirmed the performance of transport carriers along the intra-taking as a starting point as the destination SC ABC SRL and companies in EU member states discharge points that indicated that CMRs. Most shipments have been made confirmed the order to dispatch specialized houses. In all these cases the operators have proven carriers of inspection bodies with the status quo tax documents;
- another part of the transport carriage in the documents to be checked were found not to be okay in the sense that traders have not confirmed carriers transports along the intra-or custom recipient directly or through an intermediary (house shipping), transport with the starting point and the destination SC ABC SRL companies in EU member states indicated that the discharge points in the respective CMRs.

In this situation, tax auditors, based on the above findings, led to additional VAT on the amount of 15,023 lei, less so, to set the amount of 169,876 lei in addition to the initial inspection.

However, considering that the carriage operators carriers remains unconfirmed, however, question the inclusion of CMRs ABC SRL SC submitted data on the carriers concerned (which consist of entry stamp, registration numbers, that means the transport and transport and date of signature of a representative) tax auditors did the notification of the competent police .

Further, following preparation of the decision to impose additional tax payment obligations established by the tax authorities issued under this second tax audit report (prepared in October 2009), the taxpayer filed the new complaint to the competent tax, the total amount of 15,023 lei. The motivation cited by the taxpayer in support of the appeal was the fact that he only had to demonstrate a direct commercial relationship with the cargo carriers to qualify for VAT exemption, due to transport EX WORKS condition on the relationship with the client, but an indirect relationship as it did, namely that the CMRs have received the legal term, and this is confirmation of acceptance of the consignee (na: the society of EU member state). And in this case, following submission of the appeal, the tax has compiled a report approved by the head of the administrative body issuing tax tax under appeal, which includes views across the arguments in support of the appeal by the taxpayer, report submitted to the competent body to resolve of appeals. In addition, under the law, given written notification of the police authorities of the reasons given above, the tax auditors have made reference in the essay on this question.

Following analysis of submissions of the parties at this stage, the competent body for settling disputes, the content of the decision on the appeal lodged by the SC ABC SRL solution reads:

"Regarding the amount of 15,023 lei of VAT because the settlement is subject to settlement if the appeals office may invest the proceedings, given that tax authorities have notified the criminal prosecution bodies and research on issues identified in the tax audit report October 2009 was issued under which the tax (...). Between the establishment of additional tax obligations established by the tax audit report in October 2009 and establish the facts of the offenses committed is a close interdependence of the case upon which the administrative way (...). As a result, the administrative bodies can not rule on the merits before complete resolution of the criminal side.

Given the above stated it is noted that, pending a final settlement on the criminal side, the Office of resolving disputes can not invest the proceedings, which is why resolution of the case will be suspended for a total of 15,023 lei representing VAT, administrative proceedings will resume in accordance with article 214(3) of GO no. 92/2003 regarding the Fiscal Procedure Code, republished, with subsequent amendments."

By the same decision to set the forwarding of the case following the tax inspection bodies termination reason that caused the suspension to be submitted to the competent body for settling its legal dispute settlement.

At a later date, police authorities, thus making specialized research on issues brought before them, have responded by tax auditors, which shows that "in terms of criminal was found that representatives of SC ABC SRL are not guilty and had no knowledge about how these shipments were held", but without further clarification designed to confirm or deny its intra-transporting said.

Following this response, tax auditors have concluded (with a new paper containing its own point of view, submitted to the competent bodies for resolving disputes) that there is new information relevant, such as to change the initial view on the collection additional VAT amount of 15,023 lei for operations for which the operator could not prove that they have developed during the Community.

Finally, following all these steps, the existing case file documents and legal provisions in the present case and in accordance with article 216 of GO no. 92/2003 regarding the Fiscal Procedure Code, competent authorities have decided to dismiss the settlement of complaints as unfounded the objection lodged by the taxpayer on the decision to impose additional tax

payment obligations established by the tax authorities issued tax audit report under the October 2009 for a total of 15,023 lei.

He also raised the possibility of appeal of the decision to the competent Court within 6 (six) months from the date thereof.

Opinion

Thus regarded, highly complex tax litigation institution, a central part of any state tax procedure is the main pillar on which the taxpayers relationship with tax. Tax litigation in this context is the general statement of fundamental rights and interests of the taxpayer, which makes the french legal literature stated desire to base the tax law that "a taxpayer-rights law" to become reality.

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SHADOW PRICES IN THE COST BENEFIT ANALYSIS

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Abstract. *The paper presents one of the most usual costs and benefits evaluation methods and its evolution. The method, used in Cost Benefit Analysis of important investment projects, converts the market prices in shadow prices with the purpose to reflect the full opportunity cost, including positive and negative difficult quantifiable externalities and also, to eliminate any possible market distortion. Particularities of this process for developing countries are approached.*

Keywords: cost benefit analysis; shadow prices; conversion factors; semi input-output method; developing countries.

JEL Codes: D61, H43.
REL Codes: 7D, 13B.

1. Introduction

The meaning of the term ”shadow price” in the CBA approach(Cost Benefit Analysis) is different from its microeconomic meaning(1). In this context, it reflects the real economic price of an activity. That is, its opportunity cost from the entire society point of view, including all externalities of the analyzed project (positive and negative) and eliminates the effects of possible market distortions. Consequently, these prices (also called accounting prices) can differ substantially from the market prices and/or from the regulated tariffs for public goods(2).
The purposes of the use of shadow prices can be classified as follows, even if some of them are partially overlapping:

- to reflect the full opportunity cost of an activity;
- to adjust market prices for potential markets distortions;
- to account for all the externalities, positive and negative, generated by evaluated activities.

Summarizing these, the purpose of using shadow prices is to allow for quantification of real costs and benefits of activities over the society. Both real costs and benefits need to be accounted for to allow a complete evaluation of any activity.
Beside the use of shadow prices, there are other ways to account for externalities, which can be alternatively used. Both the monetization of non-market impacts, with different variants of willingness-to-pay methods (revealed preference methods or stated preference methods) and the quantification of indirect effects are more detailed approaches which are less formal and more difficult to apply. That is the main reason of the focus on shadow prices, in this paper.

2. Basic methodology and literature review

The roots of the shadow prices determination method comes from the Input-Output (IO) model of Leontief (1966). Under this model the quantities of economy outputs are determined by the need of them as inputs, generated by other output producer sectors (intermediate consumption) and by final demand. Consequently the demand for output quantities in an economy can be derived by solving a matrix equation:

$$X = A \times X + Y$$

$$X = (I\text{-}A)^{-1} \times Y$$

where:
X = vector of outputs in an economy;
A = matrix of input–output coefficients;
Y = vector of final demand;
I = identity matrix.
This equilibrium system reflects the outputs demand. Looking from the supply point of view, in the IO model, the prices of outputs (P) are the sum of intermediate consumption values (A×P) and of the values of production factors used, which result as products between production factors quantities (Fp) and their prices (P_f).

$$P = A \times P + Fp \times P_f$$

$$P = Fp \times P_f \times (I\text{-}A)^{-1}$$

where:
Fp = matrix of production factors coefficients, which reflects the need of production factors in different sectors;
P = vector of outputs prices;
P_f = the vector of shadow prices of production factors.
In this basic model there is a highly unrealistic assumption of supply elasticity for all goods and services, which was relaxed in the development of Semi Input-Output model (SIO)[(3)], by considering two classes of goods and services.
Under this model tradable goods are not supply elastic, being constrained by international prices (considered fixed – exogenous, determined by the world market and by national customs policy) and non-tradable goods are still supply elastic, with endogenous prices (resulted from the model).
Consequently, the matrix of input-output coefficients can be divided in four smaller sub matrixes:
- matrix of input coefficients of tradable goods used in production of tradable goods ($A_{T;T}$);
- matrix of input coefficients of tradable goods used in production of non-tradable goods ($A_{T;NT}$);
- matrix of input coefficients of non-tradable goods used in production of tradable goods ($A_{NT;T}$);
- matrix of input coefficients of non-tradable goods used in production of non-tradable goods ($A_{NT;NT}$).
Because tradable goods prices are determined by world prices and international trade policies, one can formalize the conversion factors (CF), called also accounting price ratios, which links between market and shadow prices as follows:

$$CF_i = \frac{M_i + X_i}{(M_i + T_{Mi}) + (X_i - T_{Xi})}$$

where:
M_i = imports of good i (CIF prices);
X_i = exports of good i (FOB prices);
T_{Mi} = import taxes for good i;
T_{Xi} = export subsidies for good i (if exist).
Tradable goods shadow prices (P_T) can be easily derived from their market prices (MP), multiplied by this conversion factors (CF_i):

$$P_{Ti} = CF_i \times MP_i$$

The implicit assumption states that international prices are undistorted equilibrium prices and domestic market prices are affected by international trade policies (import taxes and/or export subsidies).
For non-tradable goods, prices (P_{NT}) result as solutions of a set of simultaneous equation that can be expressed in matrix form:

$$P_{NT} = P_{NT} \times A_{NT;NT} + P_T \times A_{T;NT} + Fp_{NT} \times P_f$$

where:
Fp_{NT} = matrix of production factors coefficients used in the non tradable goods sector;
P_f = vector of shadow prices of production factors;
P_{NT} = vector of accounting prices of non-traded goods;
P_T = vector of accounting prices of the traded goods.
By solving this matrix equation result the equilibrium prices:

$$P_{NT} = P_T \times A_{12} \times (I-A)^{-1} + Fp_2 \times P_f \times (I-A_{22})^{-1}$$

These equilibrium prices are determined by the shadow prices of their tradable inputs (derived by using of the conversion factors presented above) and of their production factor inputs (opportunity costs for production factors).
The methodology of shadow prices determination was firstly presented by Little, Ian M.D. and James A. Mirrlees (1968) and synthesized later by Lyn Squire and Herman van der Tak (1975), both working with the World Bank. That is why generally the reference to this method is done through the first letters of the authors' names: LMST.
The procedure was approached and simplified in some respects by Saerbeck (1990) and MacArthur (1994 and 1997).
Nowadays, the simplified procedure is generally accepted and is used to derive the shadow prices involved in CBA, within appraisal of European Projects. The simplified method derives conversion factors for non tradable goods, determined as weighted averages of conversion factors for their tradable and production factors inputs. The latter are determined as ratios between opportunity costs of production factors and their market price.

3. Shadow pricing in developing countries

The shadow pricing procedure presented has some particularities for developing countries, which allow for complete quantification of costs and benefits over the society, but in a simplified manner.
Firstly, the goods and services involved in an investment project (both as inputs and outputs) are separated in two main classes:

- Tradable goods and services, which are any goods and services that are internationally traded.
- Non-tradable goods and services are those that are impossible to be internationally traded (mostly these are services).

For the tradable goods are computed conversion factors based on specific international trade data. Therefore, market prices of tradable goods can be converted in border prices, which are equivalent to shadow prices. For this purposes are used FOB prices if the goods are exported or CIF prices if the goods are imported.
For not very significant non-tradable goods the approach is similar in some respect, the difference consist in the conversion factor used, which is this time an average of tradable goods at the level of entire economy, called standard conversion factor (SCF):

$$SCF = \frac{M + X}{(M + T_M) + (X - T_X)}$$

where:
M = total imports (CIF prices);
X = total exports (FOB prices);
T_M = total import taxes;
T_X = total export subsidies (if exist).
Usually, for opened economies this standard conversion factor is very close to one unit. If it is significant larger than 1, it reflects significant subsidies granted for exports and if it is significant under 1, it reflects trade protectionist policies.
For significant non-tradable goods the approach is different depending if the non-tradable good is an input (a) or an output (b).
(a) The inputs are decomposed in their tradable and production factors inputs, based on the composition of their production. The conversion factors are weighted averages of conversion factors of their tradable and production factors inputs.
The shadow prices of production factors, especially labour, are derived by adjustment of the market prices, considering their opportunity cost.
For labour the shadow wage is equal with the market wage, as long as the labour market is competitive. For less competitive segments of labour market[(4)] the shadow wage (SW) is estimated by the following formula:

$$SW = W \times (1-t) \times (1-u)$$

where:
W = market wage;
t = rate of all social contribution and income tax;
u = regional unemployment rate.
This means that the opportunity cost of the labour, from the society point of view, in a market affected by involuntary unemployment is significant less than the market price, because the labour force is not displaced from other productive activities.
For land (especially for those owned by the public sector) the shadow price is the opportunity cost, if alternative options for land use exist. If there isn't any alternative use for land, the historical cost of land is not an opportunity cost for the society.
(b) The opportunity cost of non-tradable outputs can be evaluated by alternative methods based on willingness to pay methods (revealed preference methods or stated preference methods), benefit transfer or by inclusion of indirect effect.
This simplified procedure is generally more facile than other alternative approaches and reflects both use and non use values. Nevertheless, the alternative evaluation approaches can be complementary used for costs and benefits, but special care must be given to avoid double quantification of benefits. The rule is to exclude any other alternative method of benefits quantification when conversion factors were applied over operating revenues to convert them in shadow prices.

Notes

(1) In consumption optimization problems, in the field of microeconomics, the shadow price is the Lagrange multiplier ($\lambda = \frac{U'(x_i)}{p_i}$; i = 1,2), which reflects the marginal utility/(cost) of one currency unit increase/(decrease) of the budget.
(2) See *Guide to Cost Benefit Analysis of Investment Projects*, European Commission, Directorate General Regional Policy, 2008, p. 246.
(3) The SIO model was firstly proposed by J. Tinbergen (Tinbergen and Bos, 1962: pp 82-83).

(4) Usually the skilled labour force market is considered to be competitive with a CF = 1 and the non skilled labour force market is affected by involuntary unemployment, with a conversion factor: CF = (1-t) × (1-u).
Nevertheless, sometimes even the skilled labour force market can be highly affected by involuntary unemployment.

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SECTION IV
FINANCIAL MARKETS AND INSTITUTIONS

IMPLICATIONS OF THE FINANCIAL GLOBALISATION ON THE FINANCIAL STABILITY – PRICE STABILITY RELATIONSHIP

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Abstract. *This paper aims to emphasize some implications of the financial globalisation – the most recent, dynamic and alive form of the globalising process – on the relationship between price stability and financial stability and to what extent the central banks include these two important objectives in their regulations. The present context revives the dilemma on whether the monetary policy should or not assume as a main objective the ensuring of the financial stability in parallel with the fundamental current purpose of most central banks – to ensure the price stability. Although contradictory, the arguments brought by both sides, are solid enough.*

Keywords: financial globalisation; price stability; financial stability; central banks; monetary policy.

JEL Codes: E52, E58, G01.
REL Codes: 8J, 10A, 10B.

1. Introduction

Throughout its evolution, humankind has known numerous development stages that complied to the socio-economical needs of each period. Starting with the incipient forms of a closed society where needs satisfaction was based on its own offer and resources, in time, the communities started to interact and subsequently, following the specialisation, certain regions arrived to the point where they depended on others, a fact that presently led to the existence of one "world community" where each country is interconnected with the rest of the world, forming a whole, a phenomenon that the specialised literature named *globalisation*.

Globalisation, one of the most controversial phenomena worldwide, studied by researchers in different fields – economic, political, social, cultural etc. – has its origins in the French and American writings of the '60s, presently becoming a fashionable cliché, a universal paradigm able to explain the latest and most complex phenomena of the contemporary world. Although it is widely used, finding its expression in all languages, it is also a term without a precise and universally accepted definition. Paradoxically, in a society of knowledge, "we do not know" exactly a theory to define the globalisation in a form unanimously accepted by all the fields in which its effects are present – political, juridical, economic and social, the multitude of senses tending to enrich its area instead of diminishing it.

If our scientific project had been oriented towards the direction of the globalisation phenomenon analysis and its implications on the financial system, we would have taken a very difficult scientific path that is not clearly dealt with in the specialised literature. Due to these facts, we directed our attention towards the basic sense analysis and maybe the most used one, of globalisation, mainly the economic one with its specific financial component.

The financial globalisation, the global economy system's spine represents the most dynamic and alive dimension of the globalising process. Currently, the globalized economy, a result of a more open society, is characterised not only by free goods and services trade but,

moreover, by the free capital circulation. Thus, we take into consideration an accentuated integration of the world's countries economies by means of financial exchanges and flows. The interest rates, currency exchange or prices of the financial assets in different countries are powerfully intercorrelated today, the global financial market having a powerful influence on all the economic activities.

Regarded in its essence, the financial globalisation as a complex evolutions and contradictory results process, presents not only positive effects but also reverse effects through the high risk and volatility degree that characterises the global financial environment. As the recent events have also proven, the financial globalisation can cause *financial instability* worldwide, activate extensive crises and not also increase the risk of a big global recession.

Concerning the *international financial crises*, we notice an increased concern on behalf of the central banks for the financial stability ensuring because the existence of a solid and stable financial system provides the premises for the implementation of an efficient monetary policy that contributes to the achievement of the fundamental objective. The financial crises in the last years, including the current global economical crisis (2007 – present), stresses on the significant role of the monetary policy in correcting the macroeconomic imbalances and at the same time, it raises new issues regarding the monetary policy. A globalized economy assumes a more unstable and volatile financial sector. As a consequence, the probability for a financial crisis to occur is higher and higher. Due to globalisation, the financial crises occurred at the level of the financial market in a country spread negatively thus influencing the financial markets worldwide. Financial crisis episodes appeared in all the countries, developed or developing, but the most recent of them (the global financial crisis started fall 2007) seems to be without precedent in the last half of century. The economic recession extended in the USA, Europe and Japan and it seems to be much more painful than the economic drop in 1981-1982. The theorists as well as the practitioners in the field believe that the current financial crisis has its roots in the dramatic decrease of the USA house prices or in the mortgage market drop. However, this vision is incomplete and superficial, the financial crisis' fundamental causes being much more profound, of macroeconomic as well as microeconomic nature.

2. The content and characteristics of the financial globalisation

Globalisation, a phenomenon that has presently comprised all the important fields of a state's activity, is approached from the universality and irreversibility perspectives, as well as by reference to the fact that it does not exist, being actually a "myth" without a solid basis in reality.

Some critics consider that the globalisation is nothing but an Americanisation. For example, Thomas Friedman, in his work, "The Lexus and the Olive Tree", specifies the following: "globalisation means in fact Americanisation; the globalisation has Mickey Mouse ears, drinks Pepsi or Coke, eats Big Macs, works on IBM laptops. Many societies in the world see it as a good thing, but others consider it a fundamental threat".

The study of literature indicates three great thinking schools that Held, McGrew, Goldblatt and Perraton (2004, pp. 26-34) identify as follows: the hyper-globalists or the *globalists* (Scholte, 2000), the sceptics and developers or the *moderates*, according to the same Jan Scholte (2000). However, an essential aspect, very controversial and at the same time widely analysed, is the *financial globalisation*, a process which aims to create a "money global market", a worldwide financial market, as well as a global financial system.

This globalisation form, the most recent of all the globalisation ones, consists in the appearance and development of a global financial network that operates continuously on the time zones quasi-universality, but also brings the counterparty inherent to this globalisation, meaning the monetary instability and the financial crises.

Lomborg (2004) too, in his studies regarding the implications of the globalisation on the world at present underlines among others, the importance of maintaining the *financial stability*. He analyses the possible opportunities that the confrontation of ten of the most important challenges worldwide presently assumes (Figure 1). In his analysis, he starts from a very simple but fundamental idea: by confronting with a rarity of resources in order to deal with the present world issues, prioritising is essential. If we do not tend to prioritise, the issue will not disappear and its solving will ultimately be more expensive.

Source: processed data from Lomborg (2004).

Figure 1. *The 10 humankind fundamental challenges in the globalisation context*

The financial globalisation phenomenon can be distinguished by a series of operations such as: the integration of the public sector by obtaining stat loans, the integration of the private sector following the direct foreign investments, as well as purchasing the stocks of some national enterprises performed by foreign investors and the integration of the banking sector following the deregulations and the settlement of some new financial institutions, a fact that determined the amplification of the capital financial flows volume, as well as the increase of their intensity.

In conclusion, this phenomenon, started in 1982 and corresponding to a vast world money market formation, is based on three elementary factors – the 3Ds: division of markets, financial deregulation and disintermediation. In this respect, the mutations that take place at the level of the financial system are determined both by the financial globalisation phenomenon ant the technological and financial innovations.

The financial globalisation has a differentiate impact on the various categories of macroeconomic policies applied by a state but it has a significant influence on the *monetary policies.*

Starting from these suppositions we can conclude that the structural mutations and the perturbations that have taken place at the level of the financial systems as well as the contemporary financial markets own effervescence performed under the impact of the technological and financial innovations, raise important issues regarding the current fundamental objective of monetary policy promoted by the central banks in the field of systemic stability. These reasons are strengthened also by the observations that are made in the literature according to which the recent international crises proved that the inflation stabilization at low levels, together with economic growth, create a "new economic environment", pseudo-solid, within which the financial stability is not collaterally constituted.

Most of the world's important central banks assumed now, by their status, as a main monetary policy objective, the "price stability insurance". Bernanke (2006) considers this objective both a purpose itself and a means for the monetary policy, because it brings a special input to the achievement of a sustainable economic growth as well as to the macroeconomic stability, and by this, to reaching a high level of social welfare. The common decision (of some banks such as: Central European Bank, The Federal Reserve System, Bank of Japan or The National Bank of Romania) of the price stability as a fundamental objective of the monetary policy is self-supported by its advantages regarding: *relative price transparency improvement, decrease of the real and nominal interest rates, protecting the real value of incomes and fortunes and avoiding the resources misappropriation from the productive area to useless operation of covering against inflation*, so that a sustainable economic growth, a better labour force occupation, social welfare improvement and the stability and social cohesion maintenance could be reached.

Following the financial globalisation process intensification and the financial-banking markets liberalisation and the financial industry innovation capacity, contemporary economies have to face a new challenge namely, *the financial stability achievement.* In the absence of a viable and stable financial system, the efficiency of the monetary policy in reaching the objective of price stability maintenance is limited.

3. The relation between price stability and financial stability in the context of financial globalization

Recent events have brought back into discussion the question whether the monetary policy should or should not consider the ensuring of financial stability its main objective next to its current fundamental objective – the ensuring of price stability. Although contradictory, the arguments provided by the two parties are strong enough.

In the last two decades, the financial crises in the financial globalisation process have triggered the enhancement of debate among authorities but also in the field of specialised literature as far as the relationship between price stability and financial stability, from two perspectives – *the conventional approach* and *the new environment approach* – are concerned.

The conventional approach of the relationship between price stability and financial stability has been dealt with by the American monetarist Anna Scwartz (Schwartz) who stated that a monetary policy oriented towards ensuring price stability contributes to the reduction of the financial crises frequency and of their negative consequences. Such an approach, known in the literature as the "Schwartz hypothesis", supports the idea that "the price stability is a necessary and sufficient condition to maintain financial stability" (Mésonnier, 2004).

The conventional vision, found especially in Bordo, Dueker and Wheelock's works (1998, 2001), who showed that the most serious banking crises occurred in periods of time characterised by a significant price instability, is analysed according to statistical data. The studies carried out by Bordo et al. (2001) are based on statistical data and reflect the fact that, in the case of the USA and Great Britain, there is a significant positive relationship between inflation and financial instability for the two periods taken into account: 1790-1933 and 1972-1999. The conclusion which can drawn from the works of the above-mentioned authors is that *the price stability and the financial stability are complementary and coherent.*

Both the international financial imbalance, which started in 1997, and the current financial crisis occured in the context of an economic environment characterized by stable prices, a fact which invalidates the conventional approach according to which the price stability represents a sufficient condition for ensuring financial stability.

Goodfriend's study (2001) emphasises for the first time the role of a credible monetary policy (which acts against inflation) in the process of financial imbalance. This perspective is also supported in the studies carried out by Borio and Lowe (2002) and Borio et al. (2003), which reflect the fact that financial imbalances can occur and, moreover, multiply in a *new economic environment* characterised by stable prices. The above-mentioned authors emphasize the central role of a credible monetary policy in the aggravation of financial imbalance, thus clearly introducing the hypothesis of the "credibility paradox" of the monetary policy.

"The credibility paradox" of the monetary policy is also known in the literature as "the new environment hypothesis", according to which "*once the inflation is stabilised at a low level, a new economic environment is created, in which financial stability is not guaranteed* (Isărescu, 2009). Therefore, the price stability represents a necessary condition for ensuring financial stability but not a sufficient one. The "credibility paradox" of the monetary policy, or the "new environment" hypothesis emphasises the fact that an economic environment characterised by low and stable inflation can create a climate of exaggerated confidence which would encourage taking considerable risks and thus, would determine an excessive price raise of financial assets and would therefore trigger the instability of the entire financial system.

In this respect, Herrero Alicia and Pedro del Río (2003) study the main factors of influence with an impact on the financial stability achievement, with a stress on the monetary policy design. Their study, carried out on a sample of 79 countries in the 1970-2000 period, aims to assess the extent to which the central bank's fundamental objective's and the monetary policy's option affects financial stability (in the context of banking crises). In this way, we find that if the fundamental objective of the monetary policy is focused towards ensuring price stability, the probability of a banking crisis occurrence is reduced. As far as the strategy of monetary policy is concerned, the targeting of the exchange rate reduces significantly the probability of a banking crisis occurrence, especially in the case of the countries in transition.

The empirical studies carried out by Q. Farooq Akram and Øyvind Eitrheim (2008) demonstrate that central banks can promote financial stability by stabilizing inflation and output, and that the additional stabilization of the assets prices and credit expansion could support the financial stability.

Some authors (Dupor, 2002, p.99-106) take into account the possibility of establishing a potential compromise between price stability and financial stability. At present, the price stability is considered the perfect target to reduce the inappropriate allocation of resources within the production sector. Despite this fact, the above mentioned aspect is available only in the absence of shocks caused by the price of assets. In the case of such a shock, the stabilisation of the assets price reduces the distortions which can affect the investment decisions.

Dell'Ariccia et al. (2004) also refers to the influences that banking crises have on the credit market and on the economic growth level, with a significant impact on financial stability. Therefore, they have reached the conclusion that while adverse shocks trigger both poor economic performances and tension in the banking environment, there is also additional pressure on behalf of the banking environment on the level of economic growth because banks are forced to reduce the level of credits.

Although the literature offers various studies with regard to the influence that monetary policy has on financial stability, the decision factors can not issue precise monetary policy rules, and would rather express certain general considerations and warnings which can be used in its actions' orientation. In this respect, Lorenzo Bini Smaghi (2008) discusses in

one of his works four main directions that central banks should take into consideration, starting from the following considerations: monetary policy itself can produce negative effects on financial stability; it is very difficult for a central bank to take into consideration the particularities of the financial stability process (especially as far as the bubbles in the assets prices are concerned) in the achievement of its monetary policy; a monetary policy which neglects the potential problems of financial stability can be insubstantial on the long term; when financial stability is at risk and the financial markets face turbulence, the economic and financial variables can present a series of dysfunctions which could affect the effectiveness of the monetary policy.

The current international financial crisis, which broke out in August, 2007 in the mortgages market of the USA, shows that there can be situations when *ensuring financial stability is more important as compared to the objective of maintaining price stability*. In this case, the monetary policy focused on ensuring price stability can turn, at least on the short term (usually two years), towards adopting priority measures for ensuring financial stability. In the absence of financial stability, the increase of the efficiency of the monetary policy and, implicitly, the price stability on a medium and long term can not be achieved.

We must also take into consideration the fact that the orientation of the monetary policy exerts influence on the financial market gains. Thus, the connection between monetary policy and the assets price is dealt with both in the specialised literature and in various empirical studies (Sellin, 2001).

The impact of the financial globalisation on the monetary policy is a debated subject in the economic literature, an example in this respect being that of Tytell and Wei who, in the paper "Does the Financial Globalisation Trigger Better Macroeconomic Policies?", published in 2004, conclude that the countries with a high level of financial integration are more susceptible to generate better monetary policy results, as far as the target of lower inflation is concerned.

Financial globalisation is a current long term process which involves the world economy and which can determine positive effects on the countries' monetary policy but which can also have negative effects in this respect. However, central banks try to use monetary instruments to diminish the negative effects generated by the financial globalization and to increase the benefits brought by them.

4. Conclusions

The implications of the financial globalisation on the relationship between *monetary stability* and *financial stability* are multiple and highly complex. By reflecting on this relationship within the analysed context we can state that there is a double connection between the two. Therefore, although the fundamental long term objective of central banks is generally the price stability, they must also focus on financial stability. Otherwise, despite the progress in terms of disinflation, their sustainability is not ensured in the context of an unstable financial system. The incapacity to maintain financial stability can only lead to a reinflammation of inflation.

At the same time, by analysing the double causality relationship between *financial stability* and *monetary policy*, we reach the conclusion that it justifies itself due to the fact that: on the one hand a stable and strong financial system allows the efficient transmission of the monetary policy decisions and, on the other hand, the operational frame of an efficient monetary policy can prevent and eliminate financial perturbations. Also, the current events provide the empirical proof of the hypothesis according to which the price stability, as a fundamental objective of the financial policy and currently declared within the status of the majority of central banks, represents a sine-qua-non condition but it is not sufficient to ensure financial stability.

According to the analysed material, within the current macroeconomic context, as far as the level of the monetary policy objectives is concerned, central banks naturally adopt the

extending spectrum from *price stability* towards the *whole financial system stability* because its solidity, at least on the short term, ensures the premises of achieving the objective, presently held both on the medium and on the long term, a conclusion drawn from the above-mentioned economists' studies. Ensuring financial stability represents a natural concern of central banks, which results from their specific attributions. The Bank of England has already included within its status "the protection and consolidation of the stability of the financial system of the United Kingdom" as a fundamental objective of monetary policy.

Acknowledgments

This work was partially supported by the European Social Fund in Romania, under the responsibility of the Managing Authority for the Sectorial Operational Programme for Human Resources Development 2007-2013 [grant POSDRU/88/1.5/S/47646].

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INITIAL PUBLIC OFFERINGS – RATING INDICATORS, ALTERNATIVE AND FUTURE PROSPECTS

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Abstract. *The purpose of this paper is to mark the trend of IPOs in the current economic environment, globally and in Romania by measuring the return of the first day of trading and the wealth transferred to the shareholders and identifying and analyzing the alternatives available and the prospects of such operations. Studies of IPOs have outlined a multitude of effects on the initiating companies, in terms of short and long term performance, the dividend distribution, growth and profitability for investors. The success of IPOs on the Romanian market was highlighted most often only in terms of volume and price of the subscription, which is why we try to evaluate IPOs through specific analysis tools used in markets with expertise.*

Keywords: IPO; financial intermediaries; underpricing; reverse take-over; self underwriting.

JEL Codes: G11, G24.
REL Codes: 11B, 11E, 11G.

1. The need and motivation of IPOs

Becoming a public company is an objective pursued by most managers due to the many advantages such as: access to capital, liquidity, perspective for operations involving mergers and acquisitions, increasing market value for the company, increasing prestige.

Once decided this operation, the company must assess the various ways of achieving that goal. The most popular way is to conduct an IPO that traditionally takes place after the standard procedures and regulations.

When a company intends to list its shares, the future issues of shares have to be considered. The money paid by investors for the purchased shares go directly to the company, compared to the trading situations in which the money move between investors. Any listed company will be able in the future to issue new shares and benefit from its subscription and allocation rights.

IPO arises when an issuer puts on sale shares to the investing public for the first time. This procedure is usually used when small in size and in growth companies are seeking capital for development, but the operation can be performed by large private companies who wish to become public companies.

Since the big initial public offerings, developed internationally, require the establishment of unions of investment banks which purpose is underwriting and placement of securities, their success depends on choosing the intermediate. Launching an IPO is a very complex process that involves challenging commitments from all parties involved.

Numerous research and studies support the idea that the investment banks have an important role in conducting the IPO as they intermediate the supply of shares and facilitate the transfer of privileged information to insider investors. The intermediation cost charged by the investment banks is around 8% of the amount bid, which is an argument for some companies to search for other ways to become public.

Also, in favor of finding another way of starting a public company are added the features that companies develop after conducting IPOs, namely: after two years these companies tend to record high levels of debt, a low level of profitability and liquidity (*Kimberly C.Gleason*). Thus, a number of companies choose alternative IPO methods, as *reverse take-over* and *self underwriting*.

2. IPOs' alternative

Reverse take-over

The call for public savings using IPO is a process that can be heavy, difficult and expensive. As a result, to more companies is appealing the reverse takeover method by which private firms prefer acquisition of companies already listed on stock exchanges.

This method consists of a transaction that allows a private company to broaden and diversify the shareholding and take advantage of an organized market for its securities. The securities of the public company are transferred to the shareholders of private firms in exchange for shares. The effect of this exchange is transferring the control level of public corporation to private company managers. The process is carried out quickly and most often by providing limited information compared with those offered in public tenders. The transaction requires the reorganization of capital in the acquiring company, the shareholders of the closed company buy the control of a public company. A company opting for a reverse takeover after entering the stock exchange gives investors a lower return than in a public offering.

Favorite areas that provided opportunities for such operations are, as international statistics show, mining and petroleum industry, pharmaceutical industry and the financial sector. For example, during 1993-2003 in Canada 1384 companies have entered the market through reverse takeover, with a ratio of 2.33 per reverse takeovers for each public offering.

Studies on this subject have showed the different value of a company that may choose one of these two methods: the hypothetical way, a company with a turnover of $ 1 million USD will be assessed at a value of 943,396 USD when launching a public offer and at only 595,238 USD if the reverse takeover is proceed. The explanation of such differences comes from the nature and volume of information available to investors by companies, namely, the information in the initial public offering make the company more attractive on the market and the investors pay a higher price on those shares. It was also found (*Carpentier, Suret*) that there are differences in profitability between companies' shares listed on stock exchanges by the two methods: the adjusted returns for the first three years after listing were -33% for IPOs and of -81.75% for reverse takeovers, which shows that the attractiveness of the method lies strictly at the initiating company and less to the investors level.

After conducting a reverse take-over operation, the public company changes or develops that branch by incorporating the private company, private shareholders hold more than 50% of the voting securities in circulation of the public company and a change in strategy of the public company management is marked.

The strengths of such an approach aim at the following facts:

- it is less costly and takes place in a shorter time than the initial public offering and public and consist in public appeals to the economies of potential investors;

- the prospectus of the reverse take-over is smaller compared to the prospectus for IPOs;

- allows the private company's founders to have an important part of public shares compared with a fraction of these shares in the IPOs case.

For the investors can be identified a number of disadvantages, as follows:

- not all investors know that the company will change its main activity purpose;
- the private company was not the subject of an independent evaluation before being entered on the stock exchange and as a result, the investors do not have all private information in order to evaluate the company;
- shareholders do not have the same rights as those who purchase securities in IPOs case;
- because the founders and managers hold significant shares of the circulating shares, results in an insufficient volume of shares over a long period of time that would provide a certain volume of transactions and increased liquidity.

Self underwriting

Is considered a method used by companies that wish to become public and subscribe themselves to the new securities issued. Considered by some analysts as a speculative method, it is commonly used by small size firms that cannot afford the price of an IPO or are not in a given stage of development so that it is appropriate to launch an IPO. Also, this method is used by the firms that operate in "hostile" markets for IPOs. In the self underwriting process the managers determine the value of the company and have the ability to locate potential investors who then decide if the price is acceptable or not.

On this subject there are many theoretical approaches whose goal is to identify the following issues: what are the movements in the price level (in the first three months from launching) for the shares issued by self underwriting, which is the level of undervaluation of the offer price, the liquidity registered by these shares after listing on stock exchanges.

A number of authors (*Varshney, Hegde*) show that the undervaluation of the offer price is lower in the case of self underwriting than for IPOs. The mean of this undervaluation is 7.76% for self underwriting compared to 56.7% for IPOs (based on information from companies listed on Nasdaq and NYSE).

Also, by analyzing the self underwriting operations in the US market during 1996-2000, it was showed that during the period of 59 days following trading there is an insignificant difference between the recorded return of the IPO shares and those offered by self underwriting. Compared with IPOs, which are mediated by investment banks and due to their prestige attract special institutional investors, launching securities by self underwriting presents the disadvantage of attracting retail and uninformed investors on both primary and secondary capital market. Firms that decide self underwriting are especially those operating in the field of information technology, of dissemination and trading information and benefiting from the advantages of low cost information on markets where they operate.

3. Comparative analysis and the dynamic of IPOs

In recent years, privatization has resulted in many IPOs in emerging markets, that represented at the end of 2009 about 70% of the IPOs total, as compared to 20% in 2000. The largest IPO worldwide was conducted in 2009 by the Bank Santander SA of Spain (ESSAN) and it was listed on the Sao Paulo Stock Exchange and NYSE under an offer of 600 million shares.

Compared with industrialized countries, the emerging markets are more attractive for conducting IPOs. The fast economic growth of countries like China, India and Brazil can be found also in the sharp rise of the IPOs number. MSCI Emerging Markets Index shows a 75% increase in the volume of IPOs undertaken by companies in emerging countries, their value reaching 77 billion USD. In the European market, the development of IPOs has been continually increasing, the trend was maintained also in 2010.

IPOs conducted in the first half of the year 2010 may be characterized by the following statistics: a total of 593 IPOs (compared to 2014 in 2007 and 599 in 2009) that have attracted 99.6 billion USD. The market was dominated by Asia, which holds 60% of the total number of IPOs and 62% of their value. Central and South-East Europe along with Africa accounted for 22% by number and 21% of their value. In North America were carried out 16% of all IPOs, that have attracted 13% of capital raised and South and Central America 2% of the total number and 4% of the total value.

4. IPOs: empirical evidence from the literature review and rating indicators

In an IPO, the issuer may use an underwriting firm to determine the type of share that will make the bid (common or preferred shares), determining the best offer price and the favorable timing for completion. Any IPO can be a risky investment because of the uncertainty about the future value of the shares. For individual investors it is important to predict how will securities react on the first day of trading and in the period immediately following the closing of the offer.

An important step in setting the offer price in an IPO is the undervaluation aspect (underpricing). According to this, the average closing price of the first day of trading for a listed IPO issuer or the price observed several days after the initial trading is much higher than the offer price.

The subscription price of the IPOs has been the subject of studies conducted in different markets by the authors: *Ibbotson* (1975), *Ritter* (1984), *McGuinness* (1992). Undervaluing the offer price in IPOs is a serious “anomaly” and therefore many economists have developed different models to explain the phenomenon of undervaluation of the IPOs price. Some models explain underpricing as a result of prices set by the issuers or by their intermediaries. In general, small issuers have a more pronounced degree of undervaluation of the offer price compared to the case of issuers of higher dimension.

The undervaluation of the offer price goal is to generate a keen interest in those shares that after the public offering are held for the first time publicly. Through the method of "flipping" (term that means the practice by which assets are bought and resold quickly for profit) investors can achieve significant gains. In the '90s "IPO-mania" that manifested in the field of internet companies drew in the first trading day a price increase of up to 1,000% above the offer price.

Logue (1973), *Ibbotson* (1975) and others have concluded that the average offer price at which securities are offered to investors in an IPO is substantially lower than the price at which securities are traded on the market later. Numerous studies confirm that in an IPO the price undervaluation is seen not only in the US market, but also on other financial markets.

Most authors measure the IPO price undervaluation using First Day IPO Return (IPOFDR) – the percentage difference between the closing price on the first day of trading and the offer price.

Tim Loughran and *Jay Ritter* showed that in the '80s the average return on the first trading day of the IPO was around 7%. This figure has doubled in the period 1990-1998 to around 15%, after which reached 65% during the boom of internet domain (1999-2000), to return to lower values, 12%, during 2001-2003. For IPOs conducted in the U.S. market during 1960-2006, this indicator stood on average at around 17%.

In Europe, concerns over this issue can be found at the authors *Gree* and *Gajewski* (2006) which have calculated on a sample of 2,000 pan european IPOs, conducted between 1995 and 2004, an initial undervaluation IPOs average of 22%.

A concept proposed in the studies is that of money left on the table. According to *Jay Ritter*, money left on the table is the difference between the closing price for the first day of trading and the IPO offer price, the difference multiplied by the number of securities sold on the first day. It represents the profit for the first day, received by the investors who have been allocated shares at the offer price and represents a transfer of wealth from the already existing

shareholders of the issuing company to the new investors. For example, in the US in 1993, Allstate Insurance Company offered 68.5 million shares at a price of 27 USD per share. On the first day of trading, the share price reached 29.375 USD per share (an increase of 8.8%). The difference of 2.375 USD per share, multiplied by the number of shares offered, amounted to USD 163 million, representing money left on the table.

Regarding the optimal time to conduct an IPO, *Pastor* and *Veronesi* (2005) developed a general equilibrium model showing that the number of IPOs tends to increase sharply when the expected rates of return are at low levels. *Lowry* (2003) shows that there is a strong positive link between average income of the first trading day of the IPO and the number of IPOs completed. In this respect, *Baker* and *Wurgler* (2006) use the average income of the first day of trading as a measure of the degree of satisfaction and demonstrate that the revenue expected by investors is related to the possibility that these securities may be evaluated.

Regarding the possibility of predicting the future returns for the securities purchased on the stock market, there are a multitude of views. In the last two decades, as a result of the studies conducted by *Campbell* and Shiller (1988), *Fama* and *French* (1989), it was concluded that for many market variables it would be possible to predict their future levels. However, *Goyal* and *Welch* (2006) investigated the existing literature and concluded that there is no reliable evidence in affirming the possibility of predicting future returns of shares.

The danger of overestimate the offer price (overpricing) is also important and should be taken into account. If the shares are offered to the public at a higher price than that set by the market, the broker will have difficulty in selling the securities. Even if all offer is sold, it is possible that the shares to fall in the first day of trading, so their keepers will record losses.

The literature devoted to IPOs has a large space allocated to the level of dividends provided by the companies that have conducted IPOs. The post-IPO period is considered statistically significant as it was shown that in the first 12 months after conducting an IPO, the companies recorded losses (negative savings). According to these studies, their level has grown from 19% in 1980 to 37% in the period 1995-1998, after which reached 79% during the time known as the "internet bubble" (2000). Also, the most important feature of the post-IPO is that it does not distribute dividends because the firms have the maximum opportunities for investment and future growth, but also manifest a low profitability. Authors *Bharat A. Jain* and *Chander Shekhar* show that only 25% of firms are distributing dividends. Regarding the decision to distribute dividends analyzed in the period 1990-1998 for a sample of 1628 IPOs had been reported a negative trend to the number of IPOs, profitability and risk. The phase analysis shows that of the 1628 IPOs, 99 (representing 6.08% of the total sample) have initiated dividend payments and 1529 (of which 913 were profitable) have not. However, from the IPOs issuing launched in the 90s, only 14% had distributed dividends during the first 10 years post-IPO and only 5% of the IPOs carried out in the ’95 had distributed dividends during the first 5 years post-IPO.

Doo Seung Choi, Iummo Lee, William Meggie... have investigated to what extent the companies that had started IPOs were profitable. The authors have analyzed the privatized companies through the IPO method in 42 countries over the period 1981-2003 and showed the performance of IPOs in the long term and they have recorded abnormal returns of 34.7% for 99 of the privatizations in the period 1980-1995 and 88.2% for 102 privatizations. To quantify the abnormal return, the authors compared the index Financial Times Stock Exchange with the local stock market indices, the conclusion being that abnormal returns can be consistent with improving the managerial efficiency of the privatized firms.

5. IPOs analysis for Romania

Year	2002	2003	2004	2005	2006	2007	2008	2009
Number of IPOs	1	1	1	3	3	2	3	2
Number of primary offerings	8	5	5	4	7	2	3	1
Total public offerings (primary and secundary)	19	19	12	10	15	5	6	2

Source: National Securities Commission.

During 2002-2006 the number of IPOs has consistently exceeded the number of primary offerings (except for 2005 with a situation balanced between the two categories). During this period, there have been few new capital market issuers and the trend that manifested for the already listed company was the highlighting of this status by launching initial public offerings.

During the period 2007-2009 was evident the decreasing trend of the number of initial public offerings, they came to be equal in number with IPOs conducted in 2007 and 2008. In 2009, there was only one initial public offering and no IPO.

The cause of this trend can be explained by the beginning of financial and economic global crisis in 2007 that led to the suspension of the IPO, although the market had previously received signals for future IPOs from companies like Best Computers/Diverta, Realitatea TV, Continental Hotels, Ultra Pro Computers, RCS&RDS, Elvila, Medlife, Cris-Tim and others. Also the success registered for listing the state companies Transgaz and Transelectrica was a signal that the listing on the BSE can be considered an effective way to boost privatization and capital market development in Romania. But the financial crisis had also the effect of lack of opportunity for these listings in circumstances where financial flows have left the capital market in Romania.

The IPO classification taking into account the offer value criteria finds the following categories: small value offers (eg. SSIF Broker Cluj, Vrancart Adjud), medium value offers (eg. Teraplast, Flamingo International, Alumil) and high value offers (eg. Transgaz, Transelectrica).

The attractiveness of an IPO can be determined taking into account the underwriting level recorded. Particularly attractive were considered Transgaz, Alumil, Transelectrica, Flamingo and SSIF Broker that registered high levels of oversubscription of those offerings, which led to the conclusion that the capital market in Romania needed new issuers with high economic and financial performance levels.

In the IPOs market in Romania should be noticed that the method of mediation used was “the best execution” method, which shows that between issuers and intermediaries occurs a low degree of confidence, the intermediaries do not want to assume an increased risk if the transaction is not completed and the issuers do not want to transfer the total control of the public offering to intermediaries.

IPOs brokerage firms have been both companies with Romanian capital and companies with foreign capital. In the case of the two biggest companies (Transgaz and Transelectrica), intermediaries were foreign-owned companies and they managed to successfully complete the operation based on previous experience in the IPOs field.

Starting from the offer price set in the IPO prospectus, there can be determined the IPO profitability indicators, such as the return on the first day of trading (IPO first day return) and the profit for the first day of trading (money left on the table).

Company	IPO price (lei)	First day listing price (lei)	IPO First Day Return (%)	Volume traded on the first day	Money left on the table (lei)
SSIF Broker Cluj (BRK)	1.55	4.3675	181.7	1,915,966	5,398,234
Vrancart Adjud (VNC)	0.15	0.1730	15.3	9,837,888	226,271
Flamingo International (FLA)	2.3	2.5080	9.04	49,111	10,215
C.N.T.E.E. Transelectrica (TEL)	16.80	23.6959	41.04	934,594	6,444,866
Alumil ROM Industry (ALU)	4.6	8.7174	89.5	3,576,238	14,724,802
S.N.T.G.N. Transgaz (TGN)	191.92	271.8307	41.6	33,612	2,685,958
S.C. CASA DE BUCOVINA S.A. (BCM)	0.2	0.1998	-0.1	4,900	- 0,98
S.C. Contor Grup S.A. (CGC)	0.38	0.1375	-63.8	12,300	-2,982
S.C. Teraplast S.A. (TRP)	1	0.8276	-17.24	62,100	-10,706

According to a report published by the World Economic Forum, the Romanian market ranks 50th of 57 states, classification made by the average of total value of IPOs in global IPOs (data for the period 2007-2009). Romania is also ranked 51st in terms of the IPOs value in GDP, the data is calculated again as the average for 2007-2009. Local market climbs the rankings to 38th place, if we take into account the average number of IPOs as a percentage of the total number of IPOs, in the same period.

6. Future prospects for IPO

As a general characterization it can be appreciated that the IPOs market is reinvented and revitalized. This market has become more disciplined and discerning the value of these operations in crisis.

The low number of IPOs launched in the past two years is registered due to an attitude of waiting by the large issuers of better market opportunities to attract capital at the best price and in the most favorable conditions.

An optimistic perspective of the revival of the capital market in Romania is considered to be listing on the BSE of the Property Fund, represented by 83 companies, 29 listed, estimating the benefits for investors, brokers, stock market, state and not least to attract foreign investment in initial or secondary public offerings.

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THE IMPACT OF THE ECONOMIC AND FINANCIAL CRISIS ON STATE AID: BETWEEN LIBERALIZATION AND INTERVENTIONISM

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Abstract. *The paper focuses on the place and role of State aid in the context of the present economic and financial crisis, analyzing State aid in connection with the contemporary international trade transformations, its evolution within the European economy, the relations between State aid and crisis in the context of protectionism revitalization in the Member States and the formation process of a new paradigm in the European economic philosophy that places State aid within a broader framework aiming at market mechanisms management at the interface between the trends of liberalization and state interventionism in the economy.*

Keywords: State aid; crisis; liberalization; protectionism; interventionism.

JEL Codes: G28, H12, L51.
REL Codes: 7H, 10E, 13C.

Introduction

From an economic point of view, the main objective of State aid, as part of the competition policy, refers to the maintaining of an undistorted competition and the correction of inherent market failure situations which may occur in an economy, aiming at increasing efficiency in the wealth distribution among the actors of the market or increasing economic competitiveness worldwide. In this way, State aid can be considered one of the most important levers of state intervention in the economy, being a relevant „indicator" of the market autonomy degree and of the interaction between public and private in the economy.

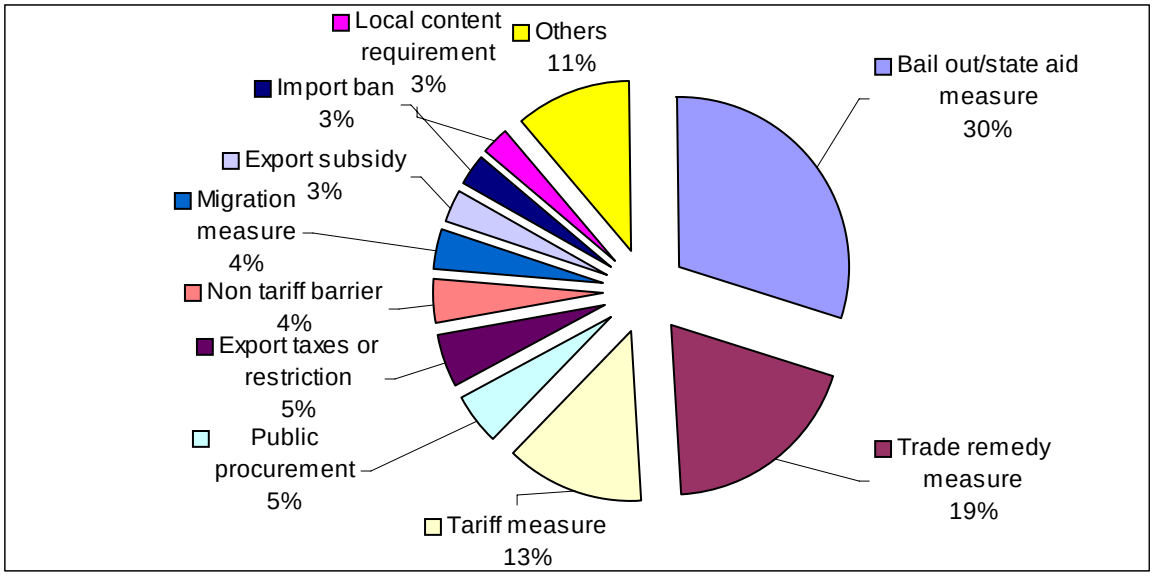
Methodology

This paper aims to explore the place and role of State aid in the context of economic transformations generated by the manifestation of economic and financial crisis, studying this phenomenon both from the perspective of contemporary international trade and from the perspective of the European economy, marked by contradictions and even interogations as a result of the economic paradigm transformation from the success of neoliberalism and of the competition policy in the second half of the XXth century to the widespread use of interventionist levers in a world marked by uncertainties, difficulties and new challenges. In this respect, the main objective of this paper is to present State aid as a dynamic force of the contemporary economy that can significantly shape the market economy mechanisms and which has to be managed with responsibility by policy makers in order to maintain a balance in the market economy.

State aid in the context of the contemporary international trade

Since the second half of the XXth century, the development of international trade has constantly exceeded the economic growth as a result of permanent reduction of tariff and non-tariff barriers within an institutional framework defined by the GATT and subsequently WTO, supplemented, in turn, by regional economic integration processes that have been circumscribed, in essence, to a global development of liberal economic principles. The positive effects of liberal trade policies on the economy have been analyzed both theoretically and empirically (Sachs, Warner, 1995), generating long-term economic prosperity. However, political, economic and social pressure arising in the context of crises are likely to produce an orientation of the governments towards short-term benefits, leading to increasing regulatory levers across the economy, including trade and aiming at supporting production, export, save jobs and generally protecting the national economy by providing subsidies which however hides protectionist tendencies and eludes the international legal framework governing international trade.

Despite the criticism on the implementation of protectionist policies in the context of the current crisis, both developed countries and developing countries have resorted to these measures as a response to the contraction of international trade flows. If international trade was in the past a real integration instrument, the trade flows weakening has contributed to the spread of the crisis worldwide and has reopened the way for protectionist tendencies, which in the short-term may prove somehow useful in protecting certain domestic industries, but surely in the long-term the effects are opposite and they equally affect the conduct of international trade and the operation of competition principles of the national economies, due to the fact that they impose additional costs, preventing an efficient allocation of resources, reducing welfare and leading, in time, to the deterioration of international competitiveness and slowing down the recovery process of the global economy.



Source: own processing after the 6th Global Trade Alert (GTA) Report.

Figure 1. *The main protectionist measures implemented in the context of the economic and financial crisis (November 2008-June 2010)*

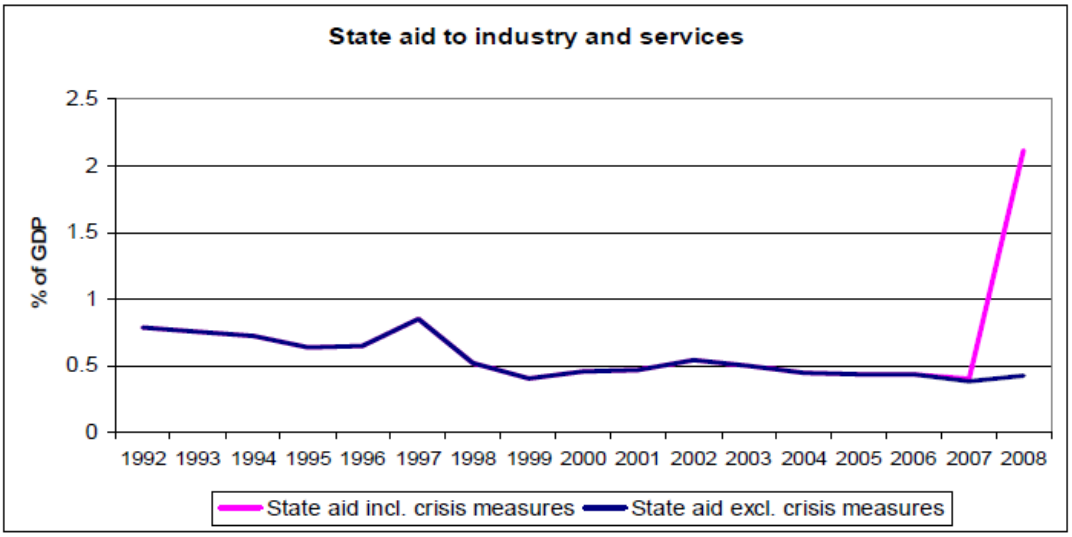
In this context, the 6th Report of the Global Trade Alert indicates an increase of the protectionist trends worldwide since November 2008 compared to the previous period, the main "targets" of these measures being, in descending order, China, EU27, USA, Germany, France, United Kingdom, Italy, Belgium, Japan and the Netherlands. Most protectionist measures were bailouts and State aid measures (183 out of 554 of the protectionist measures

of this period, representing 30%), followed by trade measures with a "defensive" nature such as anti-dumping measures, compensatory measures, guarantees (112 measures, representing 19%), followed by other types of measures, such as tariff and non-tariff barriers, public procurement, export subsidies, import prohibitions, local content measures etc.

However, empirical studies (Bussiere et al., 2010) have shown that, to date, protectionist measures were moderate in nature, but, instead, one may notice an increase in public pressure on the need to protect national economies, leading to the possibility of a "crisis" in the technical sense of the concept (Boin et al., 2009), as a result of complex changes occurring over public policies and of debates on the creation of new "models" of interaction within the economy to restore a balance between costs and benefits both in the short-term and in the medium and long-term.

Historical framework of the European State aid policy

In the second half of the XXth century, the nature and use of State aid have undergone important transformations: State aid became an important industrial policy tool in the 1960s, initially as a response to trade liberalization (Trebilcock et al.,1990); in the 1970s, State aid was directed frequently towards specific sectors in decline such as steel and shipbuilding and creating “national champions” in strategic sectors such as aerospace; however, this earlier understanding of State aid use in favor of specific targets of national policy has changed since the mid-1980s, as new policies and attitudes towards industrial policy have emerged, but also as a reaction to the success of the "neo-liberal" revolution and the adoption of the Single Internal Market programme in 1992.



Source: DG Competition.

Figure 2. *The evolution of State aid in the EU as a percentage of GDP (1992-2008)*

While in the USA the shift has been towards policies aimed at new capital formation and stimulation of demand (Eisinger, 1988, Gray, Lowery, 1990), in the EU ambiguous Treaty rules and heterogeneous Member States’ preferences have enabled the European Commission to act as a “supranational entrepreneur”, enforcing the prohibition of distortive State aid and partially creating ”positive integration” (Blauberger, 2008) by developing a model of what it considers to be a “good” State aid policy. This was pointed out by the Lisbon European Council of March 2000 that calls the Member States both to reduce the general level of State aid and to shift the emphasis from supporting individual sectors or companies towards horizontal objectives of common interest (“less and better targeted state aid”). This type of aid is considered more acceptable by the European Commission, because it does not cause

distortion of competition in the internal market and is more appropriate for making European economies more viable internationally (European Commission, 2002). This approach has allowed a gradual reduction in the overall level of State aid from 2% of GDP in 1980 to a value less than 1% of GDP in 1990 and to around 0.5% - 0.6% of GDP in 2003 - 2007, but after this period the overall level of State aid has exceeded again 2% of GDP due to measures taken in the context of economic and financial crisis.

State aid and the European economic crisis

The deepening of the crisis in the European economy has determined the need for intervention in the financial sector and in the real economy, while leading in the same time to a reconsideration of the role and use of State aid under the European competition policy. In the absence of an appropriate legal and institutional framework for an efficient crisis management, the European Union has used State aid as a tool for rescue, coordination and economic restructuring through a formal approach defined by the European Commission's "Communications" (The Banking Communication of 13 October 2008; The Recapitalisation Communication of 8 December 2008; The Impaired Assets Communication of 25 February 2009 and the Restructuring Communication of 23 July 2009).

The new legal framework was adopted under Article 87 (3) (b) of the Treaty, which allowed the European Commission to declare compatible with the common market the aid aimed "to remedy a serious disturbance in the economy of a Member State". In the light of the gravity of the current financial crisis and its impact on the overall economy of the Member States, the European Commission has considered that certain categories of State aid are justified, for a limited period, to overcome these difficulties and that they may be declared compatible with the common market under this article. This provision allows the establishment of a flexible framework for the interpretation of State aid as part of a complex structural and regulatory programme that seeks to find efficient solutions on the relationship between the maintaining of undistorted competition, on the one hand and economic and financial stability of the European economy, on the other hand. This more "relaxed" framework allowed the stabilization of the banking system, but this operation was carried by eluding the competition principles of the European economy (Gebski, 2009).

Between October 2008 and 31 March 2010, the European Commission has taken 161 decisions on the financial sector, based on Article 107 (3) (b) of the Treaty on the functioning of the European Union. Of these, 78 decisions were taken in connection with approximately 40 financial institutions and 83 decisions on about 40 schemes, the maximum volume of the measures approved by the European Commission, including schemes and ad-hoc interventions, set up by Member States following the financial crisis amounted 4131.1 EUR billion (European Commission, 2010).

Table 1

The measures approved by the European Commission in the context of the economic and financial crisis

	Amount	% of EU-27 GDP
Schemes approved by the Commission	3,181 billion EUR	25
of which guarantee schemes	2,747 billion EUR	22
of which recapitalisation measures	338.2 billion EUR	2.7
of which asset relief interventions	54 de billion EUR	0.4
of which liquidity measures other than the guarantee schemes	41.9 billion EUR	0.3
Ad hoc interventions in favour of individual financial institutions	950.1 billion EUR	7.6

Source: European Commission.

State aid and the protectionist trends in the context of the European economy crisis

The worsening of the economic and financial crisis has boosted the protectionist trends in the Member States, given that they are pushing to save distressed companies or support to give them an advantage in export markets, thus creating an asymmetric relationship with respect to their trading partners which have not received the same treatment. In this regard, particularly relevant is the UK government's reaction to authorize the merger of Lloyds and HBOS in order to try to overcome difficulties on the financial markets, at the expense of fair competition considerations. Also, governments of the Member States tend to relax the conditions for granting State aid measures at the national level, being suggestive, for example, President Sarkozy's intention to subsidise the French automobile industry through a support scheme of 7.8 billion EUR.

Negative effects of protectionist measures could have also been observed in Ireland, when limiting state guarantees by the government to the six national banks increased the risk of substantial capital leakages among non-eligible financial institutions. The European Commission's intervention to protect fair competition environment was prompt, making the Irish government to confirm that the guarantee scheme would be available to all banks with branches or subsidiaries in Ireland, with a significant presence in the domestic economy.

Facing these protectionist measures, the European Commission represents a maintainer of free trade flows in Europe and globally, showing consistency with the free trade spirit of the competition policy according to the tradition initiated by the Treaty of Rome. Despite the pro-active attitude of the European Commission, Greece's economic problems were added to protectionist events, which led to the deepening of the Member States' crisis from the euro area, questioning the confidence in the euro and even the future existence of the European Union, taking into account the fact that financial assistance to all countries that are facing and will face severe budget deficits could put too much pressure on the Commission and European Central Bank.

Towards a new paradigm in the European economic philosophy?

It is clear that the crisis has led to a redefinition of the role and importance of State aid, as part of the competition policy, but the impact of the transformations is difficult to anticipate and it will depend largely on the political will of the European Commission, but also on further reactions of the European Court of Justice. However, one can notice a mitigation of neoliberal principles that led to the imposition of competition as one of the fundamental principles of European integration, given that these mutations are confirmed by the acquis communautaire. Thus, the Lisbon Treaty no longer refers to ”free and undistorted competition” as a fundamental objective of the European Union, although there is mention of ”competition rules necessary for the internal market”. The reference to an undistorted competition has been moved to the Protocol on the internal market and competition, annexed to the Treaty, following the success of the French President Nicolas Sarkozy during the Treaty negotiations, which has caused intense controversy about the consequences of this ”move”, which are, in our opinion, more profound and may have effects in the medium and long term. From a legal point of view, the changes are more procedural in nature, but in political terms, the French success is a response to recent trends at the supranational level to subordinate public services in Member States to the operating mechanisms of competition and internal market. Faced with these pressures to extend the neoliberal principles in the intervention area of the public space, the Sarkozy's answer places France in the protectionist position of maintaining the government intervention in the sphere of public enterprises and of restricting the free and undistorted competition in the internal market (Gerard, 2010).

In this context, although State aid is not an universal measure to the challenges of the current crisis, it may be a part of broader solutions, to resize the areas of public sector intervention in the economy. Modern economies, characterized by economic freedom, competition and entrepreneurship have shown now that the existence of interventionist government policies represents a necessity in order to limit the negative externalities supported by societies in the financial market turmoil and the spillover of their effects on real economies, but this interventionism should be managed with prudence and responsibility because of the obvious limits and dificulties that are involved by the assumption of the market mechanisms regulation by the state (Bojańczyk, 2010). In this sense, Keynesian ideas of government intervention must be organically interconnected with the basic principles of neoliberalism in order to ensure consistency and economic and social sustainability in the long term.

Conclusions

Summarizing, one can notice that theoretical and economic policy reconsiderations that accompanied the transformations of the economic and financial crisis have situated State aid, as part of the competition policy, at the interface between the trends of liberalization and deregulation, on the one hand, and interventionist manifestations of keynesist nature, reaching even forms of protectionism, on the other hand.

The success of neoliberalism, as a philosophy of the European economic construction, has imposed the competition policy as a “cornerstone of European micro-economic policy” (Wilks, 2009), leading, over time, to the increasing of the competition principles of the market economy both for reasons of economic efficiency, aiming at the correction of inherent market failures and as a result of the need to increase the international competitiveness of the European economy. This progress of liberalization and deregulation in the economic field has been marked by a ”split” due to the emergence of the financial and economic crisis, that has produced mutations and even interrogations on how to use State aid, so that the principles of undistorted competition were subordinated, at least temporarily, to the rescue and restructuring of the Member States’ economies.

In this context, the European Commission’s intervention, although it was a necessity, resolved only in the short term the current difficulties of the crisis, given the fact that an efficient solution of problems related to the operation of market mechanisms can prove to be a real challenge aimed at reshaping state interventionism in the economy. Thus, the economic and financial crisis has represented a challenge both in terms of redefining a legal and institutional framework for the operation of the principles of competition and State aid, in an early stage, and as a result of the need to fiind wider solutions to ensure a balance in the economic policies at the interface of the neoliberal competition trends regarding the operation of the market economy and the need for public regulation in order to achieve social and economic benefits in the long term.

Acknowledgements

The research was made possible through the project ”Investing in people!”, Ph.D. scholarship, Project co-financed by the Sectoral Operational Program For Human Resources Development 2007 – 2013, Priority Axis 1. "Education and training in support for growth and development of a knowledge based society", Key area of intervention 1.5: Doctoral and post-doctoral programs in support of research. Contract nr.: POSDRU/88/1.5/S/60185 – “Innovative Doctoral Studies in a Knowledge Based Society”, Babeş-Bolyai University, Cluj-Napoca, Romania.

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DETERMINANTS OF POLITICAL RISK IN THE CONTEXT OF THE CONTEMPORARY ECONOMIC CRISIS

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Abstract. *The contemporary economic crisis led to changes of world politics, changes of political risk perceptions, and on its evaluation as a specific sub-component of country risk. Relatively calm politics in the precedent period of the economic crisis not only proved to be illusory with pressing realities profoundly distorted severe implications on contemporary society. In a world where the powerful have proved fragile, the weak proved more robust than the likelihood of empirical realities, it becomes necessary the rethinking of the collection of political risk by adapting and linking results to permanent economic context.*

Keywords: economic crisis; political risk; political crisis.

JEL Code: F5.
REL Code: 10I.

The economic crisis – acute impact factor on the political risk

To consider whether or not a state is on the verge of political events that may influence on a more or less concrete scale the investors' activity is a constant goal that has born in a natural context of deepening the process of increasing interdependences worldwide. Forecasting political events and their impact on all lucrative activities is a subject compared to a Gordian knot that turns out to be harder to loose in the present economic crisis.

The interdependence of politics and economics, and especially the delicate balance between the two elements, are key attributes of the current period, one that is associated with states that have almost politically failed, especially because of present economic events. The fundamental premise of political problems, during the economic crisis, is that governments are forced to take unpopular measures in order to consolidate their power and their smooth functioning.

Due to a mechanism that operates with more difficulties comparing to other economic agents, consumers or companies, the countries presents a much harder adapting possibility to a volatile economic climate. The difficulty with which a country responds to surrounding risks resides in the fact that countries have different strategies and plans over extended time horizons, which may prove hardly changeable considering that any alteration of one factor might impact the entire business framework for all businesses operating under its jurisdiction. In other words, a state can not afford or should not be able to afford to alter an item in its own structure in order to adapt to crisis, without a consistent analysis of the implications arising ex post.

The poor adapting capacity of one country's structures to local and global economic context changes is often perceived in a negative manner by the public opinion and is directly

associated with decision-makers acting especially on the legislative framework. The current economic crisis has imposed a number of unpopular legislative decisions and economic measures designed to redress the public finances of many states. Focusing states' attention on "the second phase of the crisis, which begins when governments begin to fear of the large budget deficits" (Roubini, 2010) entails a significant number of issues directly related to the negative reactions they generate, which subsequently can lead to internal conflicts such as strikes, political or social corruption, manifestos. An advanced social and political degradation of the internal situation of a state can become a serious contagion source for an entire geographical region, affecting states situated in its immediate vicinity, or even influencing macroeconomic risks, manifested most often by warfare or terrorism.

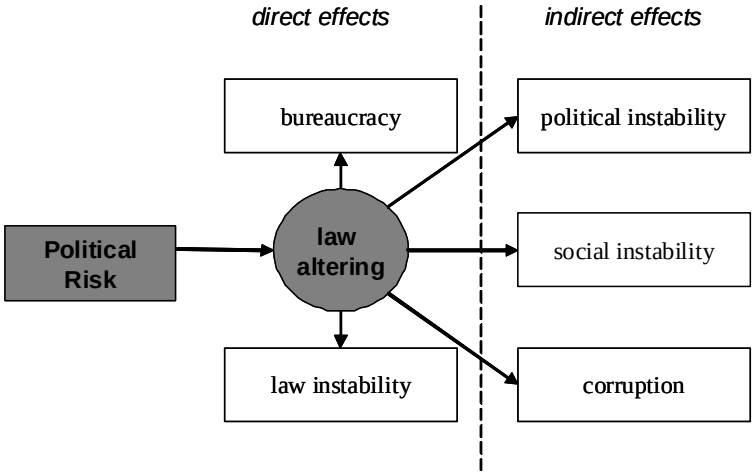


Figure 1. *The main economic influence factors related to political risk of the economic crisis*

Contemporary economic crisis demonstrates that the main tool used by governments in order to mitigate adverse effects of current economic crisis conditions and results is legislation. Several measures of coercion are the way in which authorities intervene or regulate activities within their own territories. This action is consistent with the theory that those problems which caused the current crisis are due precisely to the fact that onset there was no appropriate legislation in the areas affected, or that it was totally missing.

The fact is that although the general history of country legislative changes consists in normal phenomena, which allows optimizing the activity on its territory, during the economic crisis these changes in legislation have intensified. Especially affected were the legal stipulations related to some areas where certain stability level was achieved on a temporal context.

Determinants of political risk during the time of the economic crisis

Political risk associated with a country is most often affected by the context of contemporary events through legislative changes imposed by authorities. These changes result in direct effects with a direct impact on political risk level, in a positive or negative way, through bureaucracy or duration of law applicability.

Bureaucracy is one of the main obstacles which have a potential in blocking business activities that might have had a result in profit for a country. The most common case of a bureaucracy is directly related to law systems in different countries, but it can also exist within specific business organizations and companies. The problem of bureaucracy in the context of the present economic crisis is mostly affected by those elements intended to tighter state control over actions that take place on their territory. This need is due precisely to the current stage of evolution of the crisis, which obliges countries to self sustain themselves, provided

they are already developed countries with high debt level, or they are developing poor countries with lack of funds issues.

Bureaucracy in the developed countries has manifested during crisis periods through the strengthening of those elements designed to empower business environment control. A first step that these countries have made was to optimize their structures that put pressure on underground economy, especially on a legislative scale. Also, fiscal discipline in these countries has been strengthened as a result of legislation changes. In this context, a large number of such changes have diminished bureaucracy in order to ensure a constant and controllable flow of cost sustainability on a long term. Within the EU, Italy is the best example that supports the idea of a developed country taking direct action on bureaucracy. By declaring tax amnesty process between 2009 and 2010, authorities were able to retrieve 95 billion Euros, despite remarks made by IMF officials that "tax amnesty is a sign of desperation" (Belka, 2010). The process itself can be considered a huge success in terms of achieving fiscal targets, but the impact on the bureaucracy has been major because of the significant efforts made in order to secure the integration of the funds in the administrative apparatus and in order to ensure a better legislation anti-underground economy.

Developing countries reaction towards bureaucracy was much more significant than in the case of already developed countries. Although the expected result was the diminishment of underground economy, the lack of resources and proper central authority has affected the process in a negative manner by blocking the possibility of any significant improvements on the subject. Developing countries have turned to strengthening the discipline within an already excessive bureaucratic system by choosing to impose more strict legislation in certain economic sectors. Also within the EU, Romania has decided to strengthen discipline in terms of stock transaction tax owned to the state, by increasing the frequency with which an investor is required to settle the profit or loss on these transactions.

Generally, bureaucracy and particularly excessive bureaucracy are deeply discouraging factors for business development and for the entire business environment in a country. However, despite the fact that most of the states adopted pro-bureaucracy measures during the recent economic crisis, very few of these measures were observed or sanctioned. The explanation of this seemingly paradoxical phenomenon is the uniform increase in the level of bureaucracy at a worldwide level.

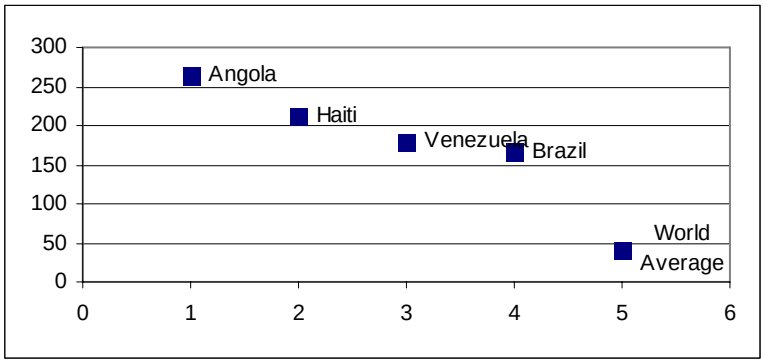


Figure 2. *The average number of days required for opening a start up and the least performing countries in the field*

Changing legislation is said to be a phenomenon that occurs naturally in the background context of the need to adapt and correct certain inaccuracies in the system already developed. Meanwhile, too frequent changes of legislation are a harmful element for the politic and economic environments in one country. On one hand, the legislative instability has the capacity to harm economic interests especially in terms of long and medium term planning, due to changes in the general framework within economic activity. Too frequently

changing legal framework would be translated as an inability or lack of will from state authorities concerned to find a solution in terms of solving one problem.

States' need to adapt to the economic crisis imposed certain legal regulations, which came to replace the old provisions after a relatively long and constant. The answer of the countries, although somehow predictable given that their financial resources are limited, has impacted the economic environment on its whole. If previous the present economic crisis there has been a balance in terms of legislative policy, as a result of adapting to new crisis needs, state legislation is unlikely to find a common balance point with other economic agents, in which both parties are able to carry out the normal parameters. Thus it is that the main area of legislation that has been amended the most often and that had a direct impact on the economy of a State's players proved to be fiscal taxing laws.

In this difficult context, about 10 EU members have made fiscal changes, most evident by increases in VAT between 2008 and 2010, in order to adjust their finances and reduce the budget deficit. Worldwide, however, susceptibility to frequent tax law changes have affected states with a budget deficit widened to a large foreign debt, while for countries experiencing surplus things have turned out to be more stable.

Political instability or political crises are some of the main causes for a high level of political risk in the current context, a factor determined by a series of expressions of dissatisfaction among the political classes and parties. Political instability is often reflected by tense relations, depending on the severity between the forces ruling a state, leading to phenomena ranging from governments fall to internal conflicts. One apparent paradox in terms of contemporary economic crisis that is clearly visible despite the economic problems is the fact that the number of governments that have fallen as a result of internal governmental tensions was extremely small. Between 2007 and 2010, among developed countries, only Japan has decided to replace a Prime Minister before the expiry of his mandate, while among developing countries only South Korea, Romania and Peru decided it would be best for their own interests to renounce at the Prime Minister's services. Generally, the power transfers during the economic crisis time have been made through scheduled elections. This apparently calm climate on the political scenes may have a twofold explanation. On one hand we can discuss about a common interest of all political groups and parties to contribute to the favourable resolution of the challenges that states encounter in times of economic crisis, and on the other hand, they have to consider the cost the government has to pay along with the entire political categories, in case they do not reach a suitable problem management agreement during crisis.

Social instability manifested through strikes, protests and other social movements is largely defined by an attribute especially in countries with a strong social political orientation. In these states, non-governmental organizations and labour unions play an important role in public life, ensuring a constant mediation between the population and state authorities. However, during the present economic crisis, there is a more pronounced trend followed by other countries to follow the path of social movements, despite the existence of other political beliefs. Predilection and states' social environment contagion of movements are powered mostly and directly by the worldwide crisis climate itself. General altering of living conditions and business context are the main accelerators of a process leading to such phenomena as protests, manifestations, more or less peaceful, acts of xenophobia, racism, etc.

Within the EU, the most active states in terms of strikes and trade union movement risk, throughout history, have proved to be Denmark and France, with an averaged of more than 100 working days lost per 1,000 employees per year from such events. Amplification of the contemporary economic crisis in the European Community also meant a more pronounced manifestation of such phenomena in other states, which previously had a lower risk of social movements, countries like Greece and Romania. This situation was, however, a result of an extension of the associated movements in all EU states.

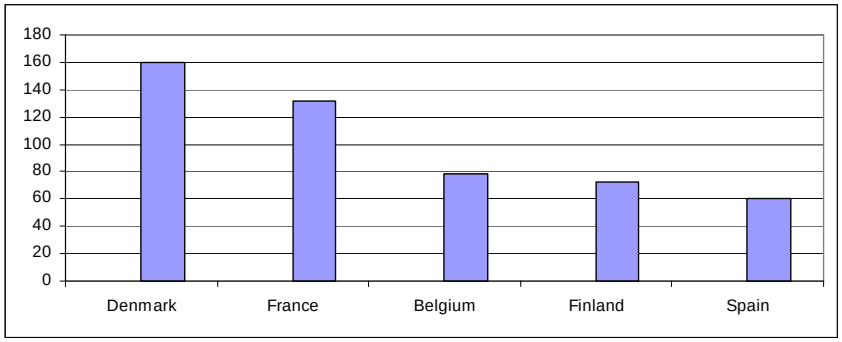


Figure 3. *EU top regarding the countries with the most working days lost to protests movement, between 2005 and 2009, per 1,000 employees*

Although corruption is a phenomenon associated with any period during the present economic crisis, there is the main premise that encourages its spread and development. The deterioration of living conditions and macroeconomic conditions in a country or a region has the potential to cause the spread of this scourge, which can take many forms. Linking indirect economic development of a country with corruption manifested in its territory, administrative system or politic climate is still a reality in the contemporary economic crisis. As such, developed countries have managed to hold the best anti-corruption measures and results, while developing states and particularly the poor are still affected by institutionalized corruption. Since 2008, according to global statistics on corruption, there is a sure and steady decrease in states' ratings regarding the assessment of this phenomenon. This perception of worsening corruption in both the developed and the developing states is due primarily to difficult economic context. Globally, comparing 2010 to 2009, in approximately 45% of the countries, population's perception towards corruption in the public system has worsened; while in the rest of 55% of the cases it has improved or remained the same. A similar comparison between 2006 and 2005 reveals that only 35% of the states' perception regarding corruption has had worsened at that time, while in 65% of states had improved or was the same. Another problem with the perception of corruption is that developing states show a trend of steady or worsening of this indicator during crisis times.

Table 1

The worst and best states performance regardingcorruption perception between 2009 and 2010

	Country	*2010*	*2009*
1	Madagascar	2.6	3.4
2	R. Dominica	5.2	5.9
	Cuba	3.7	4.4

	Country	*2010*	*2009*
1	Haiti	2.2	1.4
2	Quatar	7.7	7
	Buthan	5.7	5
	Rwanda	4.0	3.3

Political risk rating during the economic crisis

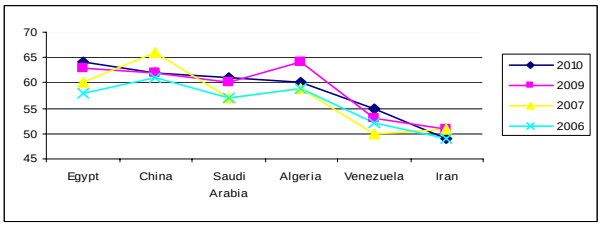
The contemporary economic crisis has clearly helped in a way to the eroding, over time, of the state political risk rating. Yet, in this context, certain countries had a positive performance of this indicator which reflects an increased capacity of economic shock absorbing, while other countries recorded negative performance in this segment, reflecting the deterioration of political and economical conditions. The trend of political rating improving for certain states indicates that those countries have especially developed features that enables them to be less affected by recession as there is practically a direct correlation between the decrease in GDP and a decrease in susceptibility to political risk associated scores.

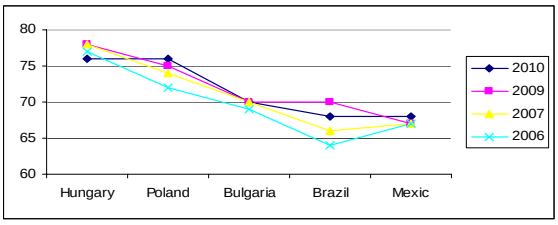
On the other hand, scoring political risk in the present economic crisis has shown a tendency to maintain or even decrease the deteriorating general economic conditions. In many developing countries for which the perception of political risk has improved continuously over the period of economic stability, during crisis time and experience there can be noticed a fall in all these indicators. Considering developed countries, however, the same issue cannot be raised, as there was no worsening political situation encountered, but rather consistency in this matter. Given that each state has its own characteristics and not necessarily the general peculiarity of the worldwide crisis, it should be clear that there are exceptions to these general rules.

In essence, the contemporary economic crisis revealed that authoritarian states are less affected in terms of political risk, while democratic countries' political risk is increasing or, in best case scenarios, remained constant. The group composed by Egypt, Saudi Arabia, Venezuela, Algeria and Iran, which can be associated with attributes of authoritarian countries, are having the best performance in terms of shock absorption capacity from 2008 to 2010. In contrast to the ones mentioned above, we find Nigeria, Argentina or Thailand, that have experienced during the same period major adjustments in terms of political risk ratings.

States that are members of regional integration organizations have a tendency to diminish the negative effects that the contemporary economic crisis has had on their political risk ratings. The more the organization is in a developed stage of integrating new members, the more the need of an intensive cooperation and, therefore, the political risk associated scores are more stable or even show trends towards improvement. Amongst EU members, the trend is also to limit the negative effects of the economic global crisis, as seen in Greece's and Hungary's cases. Brazil, Mexico and Colombia are also other examples of the same theory, but this time related to the Mercosur, Nafta or the "Pact of the three" group.

Another item of interest would be that powerful states integrated into global economic flows are not prone to political risk in the context of deepening economic crisis nowadays. China, Brazil, Russia or Saudi Arabia, some of the leading providers of products and raw materials in the world do not appear to be influenced by a negative manner despite the political risk of internal signals coming from this direction.





Figures 4, 5. *The evolution of political risk for authoritarian states(left) and states which are members of a regional integration organism (right)*

Table 2

The evolution of political risk ratings between 2006 and 2007 and between 2009 and 2010 for a 24 sample group of developing countries

Country	*2010*	*2009*	*Country*	*2007*	*2006*
Koreea	77	75	Koreea	76	75
Hungary	76	78	Hungary	78	77
Poland	76	75	Poland	74	72
Bulgaria	70	70	Bulgaria	70	69
Brazil	68	70	Brazil	66	64
Mexic	68	67	Mexic	67	67
South Africa	67	65	South Africa	64	65
Turkey	65	64	Turkey	65	64
Egypt	64	63	Egypt	60	58
Inida	63	63	Inida	62	62
Russia	63	62	Russia	63	61
China	62	62	China	66	61
Colombia	61	60	Colombia	56	55
Saudi Arabia	61	60	Saudi Arabia	57	57
Algeria	60	64	Algeria	59	59
Argentina	60	63	Argentina	65	66
Thailand	59	59	Thailand	61	60
Indonesia	57	57	Indonesia	57	55
Philippines	57	58	Philippines	55	56
Ukraine	57	57	Ukraine	56	57
Venezuela	55	53	Venezuela	50	52
Iran	49	51	Iran	51	49
Nigeria	48	42	Nigeria	48	47
Pakistan	43	43	Pakistan	45	50

Conclusions

The current worldwide economic crisis has influenced the contemporary political risk associated to each country in an outright manner. However, the manner to which this influence has occurred in the rating process was determined also by other factors. Legislative changes that countries have resorted to in the period between 2008 and 2010, based on the need to adapt to the new global situation, have led to political risk hazards in areas of bureaucracy, corruption, political stability, social or legislative. Yet, in the same time, the political risk associated with the overall risk amplification, manifested in acts of terrorism or warfare, was not experienced. Also, protectionism or culture had no major impact on the scoring of political risk during the contemporary economic crisis, but those elements should be carefully checked during the time to come, as they really reveal a true potential for problems.

Despite the fact that current politics is not the equivalent to the one that existed at an earlier time before the debut of the economic crisis, in most of the cases an answer to evidencing this alteration of the situation actually lacked from the behalf of the rating companies. A possible explanation for the situation of states experiencing tough political risk, but not experiencing any significant lowering of their political grades would be due to an array of characteristics of the states, which would stretch from it's authority over its citizens to the degree of integration of the state's global economy.

Given that nowadays it is increasingly discussed about states' failure or states' bankruptcy related to external debt crisis, a serious question mark arises over the realism with

which political risk is assessed in each state. This is even more a problem under the circumstances of an error which could influence a great deal the already disturbed markets.

This article is a result of the project „Doctoral Program and PhD Students in the education research and innovation triangle". This project is co funded by European Social Fund through The Sectorial Operational Programme for Human Resources Development 2007-2013, coordinated by The Bucharest Academy of Economic Studies.

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LEGAL AND CRIMINAL REGULATIONS IN FINANCIAL LAW- TAX

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Abstract. *As arbitrator in the market economy, the state has an obligation to establish a stable legal framework in which economic agents to compete fairly in the work performed. At the same time, state, by it test organisms, aims, in economic activity, to be followed rules established by the rules, otherwise, imposing the penalty provided by law. As a last resort, for serious violations that cause socially dangerous consequences, the penalty takes power (punishment) in order to restore the rule of law violated. As in case of the financial-fiscal, there is a number of regulations, including criminal penalties, aimed at ensuring a stable legal framework by the rules set by law and if their violation by responding the approved bodies state. Among the existing criminal regulations in the financial-fiscal, tax evasion and remember those offenses in connection with tax evasion, money laundering offenses under the Tax Code, offenses under the Customs Code, offenses under the regime of bills, checks and promissory order, the crime of false accounting, criminal acts that have seen in recent years, a significant increase.*

Keywords: tax evasion; money laundering; economic crimes; false accounting.

JEL Codes: K140.
REL Codes: 5D.

Introduction

In terms of the consequences they produce, finance and tax crime that, in fact, crime in general business, show many peculiarities. First, financial and fiscal crime hard to quantify damage. These damages are products of the state, deprived in this way, significant amounts of money.

In addition to damages, financial crime has other harmful consequences involved economically and socially field. The victims are numerous and can be both natural and legal persons. Victimization involves a feature, meaning that, frequently, those who became victims made a convenant with criminals.

Under a last point, in this matter, the real figure is estimated that the percentage of delinquency is actually much higher.

1. Tax evasion

The existence of the state is dependent on, inter alia, the participation of taxpayers, individuals and legal persons, the establishment of public funds (Hotca, Dobrinoiu, 2009, p. 53). In order to eliminate problems that arise in carrying out the duties incumbent on public authorities and institutions, state governed a tax system, whose aim is to ensure optimum operation of the incomes necessary state institutions and authorities and their obligations.

According to art. 56 paragraph. 1 of the Constitution, as revised by Law no. 429/2003, citizens are required to contribute through taxes and duties to public expenditure. " Although

the Basic Law refers only to citizens by law are established tax liability and the responsibility of legal persons (Hotca, Dobrinoiu, 2009, p. 53).

Public expenditures for community or national interest, as a whole, insofar as they concern the general government financial burdens or administrative-territorial communities native if it relates to expenses are in the care of local government (Voicu, Boroi, 2006, p. 139).

To establish tax obligations borne by citizens should not be chaotic or discretionary, in accordance with art. 56 paragraph. 2 of the Constitution, "The legal taxation system must ensure a fair distribution of tax burdens," and par. 3 of that article, any other benefits are prohibited, except as provided by law, in exceptional circumstances. "

State Tax Fairness requires that the determination of taxes to take into account the size of income and social status of the payer, so that for small income tax burden is reduced compared to higher income, but also on the same segment revenues. In theory, it is estimated that the fiscal equity involves two aspects, namely the exclusion from taxation of a minimum amount of income tax and tax generalization (Florescu, Coman, Balas, 2005, pp. 8-9).

Besides this, bear in mind that constant transformation and development of social relations in the field of taxation imposed and require an appropriate legislative framework, coherent and efficient. Exponential growth and social parameters are expressed through the creation of new legal relationships in the tax area, which, in turn, is bound to occur varied means to bypass or breach the rules governing these relations (Voicu, Boroi, 2006, p. 138).

Taxation, considered all the taxes covered by laws (Şaguna, 2003, p. 345), is necessary in any society, because it is in terms of politico-economic, legal instrument by which the state intervenes in the economy to correct of market failures or to redistribute income and resources (Hotca, Dobrinoiu, 2009, p. 55).

Therefore, prevention and combating tax evasion is a constant concern of the legislature. Based on the overall evolution of the economic and financial crime, promoting Law. 241/2005 for preventing and combating crime more effectively in this area has become a necessity.

Law no. 241/2005 has a dual function, on the one hand, to advise taxpayers – individuals and foreign legal – about the obligation to contribute, through taxes, to pay public spending and prevent the consequences posed to sanction for fraudulent theft of tax duties, and on the other hand, constitute the legal instrument under which criminal liability to those engaged in bad faith, breach of the law (Boroi, Rusu 2006, p. 5).

Being a social phenomenon with financial consequences, tax evasion is stealing taxpayers to pay their respective tax liabilities, partially or completely, using legal loopholes and making use of ingenious maneuvers to conceal taxable materials, in whole or in part (Corduneanu, 1998, p. 347).

Art. 1 of Law no. 241/2005 provides that the two groups are criminalized offenses, namely: the tax evasion – art. 9 paragraph. 1 letter. age and other offenses in connection with tax evasion (art. 3-8).

The crime of tax evasion is, in its materiality, a crime of injury, but also dangerous. In this context, the main difference between the two categories of crime refers to injury, meaning that tax evasion offenses creates a certain damage immediately easy to quantify, and related crimes of tax evasion with the only remaining danger injury rarely (Voicu, Boroi, 2006, p. 140).

In art. 9 part. 1 letter. of Law no. 241/2005 it is accused the concealing property or taxable or taxable supply in order to avoid the tax obligations.

The crime is done by tax failure by hiding the source of the goods or taxable or taxable. From this perspective, crime is alternative content.

Arguably the taxable or taxable property or source means any entity that is the basis for calculating taxes and duties (Gliga, 2007, p. 95).

The concept of “good”, a definition of it is laid down in Art. 1 letter a from the European Convention on Laundering, Search, Seizure and Confiscation of crime adopted at Strasbourg on 8 November 1990 and ratified by Law no. 263/2002, that: “For the purposes of

this Convention: (...) best means property of any kind, whether corporeal or incorporeal, movable or immovable, and legal documents or instruments evidencing title to or right on an asset."

Also, hide or taxable goods or taxable source implies – in the absence of express statutory provision – both physical concealment and script.

Article 9 letter b of Law no. 241/2005 provides as offense, "omission, in whole or in part, rendering in evidence, accounting documents or other legal documents, the commercial operations or revenues."

Accounting Law establishes several obligations incumbent on the persons responsible in the book; each economic-financial transaction will be recorded in an accompanying document. Obligations are related to the recording and processing accounting data or documents relating to the synthesis and reporting of accounting.

It is worth noting the demarcation made by the doctrine and practice – with the approach, in terms of content regulation – between the offense provided by art. 9 letter. b of Law no. 241/2005 and the offense provided for in art. 43 of the Law no. Accounting 82/1991, republished, when the latter was committed to avoiding the tax obligations.

According to the article 43 of Law no. 82/1991, "knowingly making false records, and failure of science in accounting records, resulting in distortion of income, expenditures, financial results and assets and liabilities is reflected in the balance sheet is forgery offense and is punishable under law."

As shown in the text of the law alleged offense under Art. 9 letter b of Law no. 241/ 2005 refers only to business operations and revenues in general, while the offense provided for in art. 43 of Law no. 82/1991 refers to all economic and financial operations.

The act provided in art. 43 of Law no. 82/1991, when it was committed for the purpose of avoiding tax obligations, the doctrine and judicial practice have filed two opinions.

In the first opinion is considered that this crime is in concurrence with the crime under art. 9 letter. b of Law no. 241/2005. According to the second opinion, which we find to be justified and which we agree, if the objectives of the two sides overlap offenses shall be retained in a single crime, namely that provided by art. 9 letter b of Law no. 241/2005, the crime provided for in art. 43 of Law no. 82/1991 being absorbed by the first, according to art. 41 paragraph 3 Penal Code (Ciuncan, 1996, pp. 65-66).

The supreme court decided, by decision no criminal. 4028 of 19.10.2000, that the constituent content of the crime of tax evasion to include use of false acts highlight accounting income as a result of having legal consequences, namely the reduction of tax due the state.

Article 9 letter c of Law. 241/2005 provides that criminal act that is, to highlight, "accounting documents and other legal documents, those expenses were not based on actual operations or reveal other fictitious transactions" in order to avoid the tax obligations. Highlighting cost of operations or false (fictitious) in financial accounting or tax documents consist of official business by which these documents are made based on records that do not have valid documents, in whole or in part (Hotca, Dobrinoiu, 2009, p. 86).

Activity is therefore illegal in the preparation of false supporting documents for expenditures, meaning that they have not been made or were lower than those recorded in the voucher.

On the basis of false supporting documents, then the other is operating expense false accounting documents, evidently the result of reducing net income and hence lower the state tax obligations (Boroi, Rusu, 2006, p. 158).

In article 9 letter d-g of Law. 241/2005 criminalizing other forms of crime of tax evasion, namely, "alteration, destruction or concealment of accounting documents, memoirs of the apparatus of tax charged or electronic marker or other data storage means "(letter d), "executing double records, using the documents or other data storage means" (letter e), "avoiding carrying out financial, fiscal or customs by declaring, declaration of fictitious or

inaccurate declaration primary or secondary premises checked persons" (letter f), "substitution, damage or alienation by the debtor to third persons or property seized in accordance with the provisions of the Tax Procedure Code and Criminal Procedure Code" (letter . g), all acts must be committed in order to avoid tax payment.

Law no. 241/2005 stipulates in art. 3-8 offense in connection with the crime of tax evasion, which the legislature has not given a name marginal, but that doctrine (Gliga, 2007, p. 57) named them: unrenewal destroyed documents (Art. 3), refusal of submission of documents (art. 4), prevention checks (Art. 5), withholding (art. 6), release of the stamps and standards (art. 7), reimbursements unlawful (art. 8).

2. Money laundering

In Romanian law, the term money laundering was established by the provisions of Law no. 21/1999, which was part of legislation at that time, the broad action to harmonize national legislation with EU law (Boroi, Rusu, 2006, p. 275).

Law no. 21/1999 was repealed on 7 December 2002, when Parliament approved the Law no. 656/2002 on preventing and sanctioning money laundering, and instituting measures to prevent and combat terrorism financing.

Due to its size and forms, the importance of preventing and combating money laundering is a priority of any legislation, because through this crime, necessary "fuel" for the existence of organized crime is produced.

Reality shows that money and other assets that form the subject of money laundering from the commission of various crimes. Resulting from committing crimes which are most dirty money: drugs, weapons and ammunition system failure, system failure or other nuclear materials are radioactive materials, failure regime explosives, counterfeit currency and other values, human trafficking, smuggling, blackmail, illegal deprivation of liberty, fraud in banking, finance or insurance, fraudulent bankruptcy, theft of motor vehicles, non-observance of protection of goods, trafficking in protected animals in their countries, trade in human organs and tissues, offenses committed by computers, credit card crimes, crimes committed by people who belong to associations or criminal organizations, non-compliance with the import of wastes or residues, non-compliance with gambling and other organized crime offenses (Hotca, Dobrinoiu, 2009, p. 96).

The crime of money laundering is criminalized in the art. 23 paragraph 1 of the Law no. 656/2002, in three variants.

The first variant, referred to in art. 23 part. 1, letter a, is "exchange or transfer of property, knowing that come from committing a crime, the purpose of concealing or disguising the illicit origin of property or in order to help the person who committed the offense of which the goods come to escape the prosecution, trial or execution of sentence."

A second variant, referred to in art. 23 part 1, letter b, is to 'hide or disguise the true nature, source, location, disposition, movement or ownership or rights over their property, knowing that the goods come from committing a crime."

The third option provided for in art. 23 part 1, letter c, is "acquisition, possession or use of property, knowing that they come from committing a crime."

In connection with the essence and nature of money laundering, in theory there have been some clarifications, of which we mention: money laundering is the process of converting money, dirty, the profit from the proceeds of crime money "clean". Money laundering is to eliminate or disguise the existence of illegal goods, illegal source, the ownership and use of profits from criminal activity, a process by which that profit seems as originating in a legal source; the conversion (transformation) and shifting property refers to acts that are committed, usually by the person who owns the property and wants to hide or disguise its illegal origin, how concealment or disguise the nature, origin, location, etc. It is done by employees of

financial and banking institutions, agents, traders, etc. which help in promoting the owners or designed to conceal illegal income or disguise their criminal origin (David, 2007, p. 40).

Money laundering is usually a complex activity, which comprises three phases: placing money, laundering bleaching (stratification) and creating an appearance of lawful origin (integration) (Sandu, 1999, p. 219). During placement phase, called pre-wash plastic, proceeds of crime are placed in the legal circuit by creating a fictitious movement. For placement dirty money, financial institutions or other operators are used (such as exchange houses, casinos, front companies, car parks etc.). This phase is most vulnerable, because it requires large amounts of cash and, by depositing money in bank accounts, traces may remain relatively easily detected by authorities. Physical transport of money takes place, usually, to countries known as tax havens, where there is no question of proving the origin of the amounts in cash and bank deposit as these amounts are way back in the country he came from, using other tools and processes, for example, electronic transfer (David, 2007, p. 66).

In Romania, one of the most common money laundering techniques is through the "ghost" companies. Some money laundering techniques used internationally, listed in the literature, we mention: "shelf corporations" (established in tax havens, which exists only on the "shelf" lawyers), healer (informal money transfer systems), declaring income higher than the actual payment made through Internet services, etc. (Hotca, Dobrinoiu, 2009, p. 115).

Also, in the literature (Ciobanu, 2003, p. 47) there are regarded as techniques of money laundering following: double billing from one company to buy overpriced goods or services priced in a firm open embarked on a third country, preferably in the country with favorable tax laws, real estate speculation which is simulated in purchasing a property by undervaluing its real value and reselling it to its true market value, cash loan, followed by a return through the instruments of banking and money laundering of counterfeits in the legally established casinos, money laundering in the insurance market by one-linked type contracts, which have such investment, the annual annuity contracts or lump sum contributions, added to an existing life insurance contract or a contract private pension.

For example, in legal practice (HCCJ, s.pen., Dec. No. 622/27.01.2005) it has been noted that the activity of misleading the tax authorities, resulting in a VAT, refund constitutive elements of the crime of deceit, provided art. 215 par. 1 and 2 of the Penal Code. And in close connection with the crime of fraud, which is a prerequisite offense, the defendant committed the offense of money laundering and that he reintroduced in economic cycle the amount of money collected by the tax authorities, with VAT refund, in respect of the unlawful purpose of concealing that amount (Cristus, 2006, p. 205). Be emphasized that, whatever the technique used for money laundering, money laundering is a crime not new, but merely a new form (variant) of the crime of concealment. (Guiu, 2006, p. 179).

3. Offences under the Tax Code

According to art. 2961 par. A tax code, are offenses following facts:

a) repealed (by Emergency Ordinance no. 123/2004);

b) production of excisable products subject to tax warehousing system outside a tax warehouse authorized by the competent tax authority;

c) the purchase of alcohol and distillates from other suppliers than the authorized warehouse-keepers for production or importers of such products authorized under Title VII;

d) use of raw alcohol, synthetic alcohol and technical alcohol as raw material for production of alcoholic beverages of any kind;

e) Purchase of mineral oils from processing crude oil and other raw materials that come in the economic cycle than other suppliers for production or warehouse licensed importers authorized under Title VII;

f) the supply of mineral production by the authorized warehouse without presentation by the purchaser, legal person, the payment document certifying payment of the state budget the amount of excise duty related to the quantity to be invoiced;

g) mineral oils not accessible marketing resulting from processing crude oil or other commodities, which have flash point below 85 degrees C, other than directly to end users who use these products for industrial purposes;

h) marked with false marks of excise goods subject to marking or holding in the fiscal warehouse of products marked in this way;

i) prevent any form of supervisory body to carry out spot checks in bonded warehouses;

j) the supply of mineral oil residue to other customers than manufacturing bonded warehouses are authorized to collect and to process them, the representative body without a visa or territorial tax imposed on document delivery;

k) the acquisition by manufacturing bonded warehouses mineral oil residues from other suppliers than the units which derive from operating without a visa or territorial tax imposed on the representative body of document delivery.

According the paragraph 2 of art. 2961 Tax Code, an offense under par. (A) shall be punished as follows:

a) by imprisonment from one year to four years, those referred to. c) d) e), g), i), l) and m);

b) to imprisonment for 2 years to 7 years, those referred to. b), f) and h);

c) imprisonment from 6 months to 2 years those referred to. j) and k).

Also, according to paragraph. March of the same article, after finding the facts set out in paragraph (1). c)-i) and k), the relevant regulatory body has stopped work, sealing the facility in accordance with the procedures of the plant closing Technology Control Act and submit the tax authority which issued the permit, the proposal for suspension of fiscal warehouse authorization.

According to article 178 tax code, production and/or storage of excise goods where duty has not been paid may only take place in a tax warehouse. A fiscal warehouse may be used only for production and/or storage of excise goods. Tax warehouse can not be used for retail sale of excise goods. Possession of excisable products outside a fiscal warehouse, for which there is evidence of payment of excise duty, is subject to the payment thereof.

The fiscal warehouse is the place under control of the competent tax authority where excisable products are produced, processed, held, received or dispatched under duty suspension authorized by the depositor, in the course of the specific requirements of the Tax Code (Hotca, Dobrinoiu, 2009, p. 130).

Article 179 Tax Code provides that a tax warehouse may operate only on the basis of a valid authorization issued by the competent tax authority. In order to obtain authorization for a place to work as a tax warehouse, warehouse person who intends to be authorized for the site must submit an application to the competent tax authority, which will issue, according to art. 180 tax code, fiscal warehouse authorization for a particular place only if the conditions mentioned specifically in the text.

The depositor is authorized natural or legal person authorized by the competent tax authority in the exercise of its business, to produce, process, hold, receive and dispatch excise goods in a tax warehouse.

Authorized importer is the person authorized by the competent tax authority on whose behalf the goods are declared, when the import duty is payable under art. VAT 136.

4. Offences under the Customs Code

The main premise of which is going to establish is that the introduction of customs or export of goods, vehicles and any other assets is permitted only through checkpoints when

crossing the state border and at border crossing They are subject to clearance by the customs authorities (Voicu, Boroi, 2006, p. 319).

According to art A customs code, customs regulations contain the rules of the Customs Code, its implementing regulations and other laws that contain provisions relating to customs matters.

Therefore, the legal framework with regard to customs in Romania is represented by the following acts:

- Law no. 86/2006 on the Romanian Customs Code, the latest changes and additions made by GEO no. 33/2009, respectively Emergency Ordinance no. 54/2010

- Customs Rules approved by H.G. no. 707/2006, as amended by HG no. 544/2010 - A series of orders issued by the National Tax Administration Agency –ategories of goods The plan of criminal law, offenses are defined in the Customs Law. 86/2006 on the Romanian Customs Code, namely art. 270 (smuggling simple), Art. 271 (qualified smuggling), art. 272 (use of false documents), art. 273 (using forged documents).

According to art. 270 par. A customs code, "Entering into or out of the country, by any means, goods or merchandise from other places than those established for customs control, is the offense of smuggling and punishable by imprisonment for 2-7 years and prohibiting rights" and according to par. 2 of the Article, as amended by Emergency Ordinance no. 54/2010, are also smuggled and is punished according to par. 1, "the introduction into or out of the country in places down to customs control, by avoiding customs control, goods or commodities to be placed under a customs procedure, where the customs value of goods or stolen goods is higher 20,000 lei for excise and more than 40,000 lei for other goods or merchandise" (lit. a), "the introduction into or removal from the country twice a year, with places set for customs control, by avoiding customs control, goods or commodities to be placed under a customs procedure, where the customs value of goods or goods stolen is less than 20,000 lei for excise and less than 40,000 lei for other goods or merchandise" (letter b), "any form of alienation of goods in customs transit" (lit. c). Are similar smuggling and punishable under par. A collection, possession, manufacture, transport, acquisition, storage, delivery, marketing and sale of goods or products to be placed under a customs procedure knowing that they originate from or are smuggled for committing it (Para. 3 of art. 270, introduced by GEO no. 54/2010).

Article 271 of Law no. 86/2006 criminalizes the act of smuggling qualified, which is the introduction into or removal from the country without law, weapons, ammunition, explosives, drugs, precursors, nuclear or other radioactive substances, toxic substances, wastes, residues or chemical materials dangerous and punishable by imprisonment for 3-12 years and interdiction of certain rights, if not criminal law provides a heavier penalty.

According to art. 272, using at the customs authority, of customs documents covering commercial transport and other goods, or other goods or quantities of goods than those presented to customs acts constituting the crime of using false and is punishable by imprisonment for 2-7 years and interdiction of certain rights. In accordance with art. 273, using at the customs authority, falsified of customs documents constitutes the offence of using of forged documents and is punishable by imprisonment for 3-10 years and interdiction of certain rights. Article 274 of Law no. 86/2006 establishes a common choice for all aggravated offenses. Aggravated content is achieved when the acts are committed by one or more gunmen or two or more persons together, and the penalty is imprisonment from 5 to 15 years and interdiction of certain rights.

5. Offences relating to the arrangements bills, checks and promissory notes

According to art. 84 of Law no. 59/1934, it will be punished by a fine of 5,000 – 100,000 lei and imprisonment from 6 months to one year, unless the fact constitutes a crime punishable by more, in which case the penalty is applied:

1. Any check issue without authorization from the drake;

2. Anyone issuing a check without enough available pulled, or pulled after passing the check and before the timetable for the presentation, otherwise, in whole or in part had de availability;

3. Any issue a check on false or lacking an essential element shown in paragraphs 1, 2, 3 and 5 of art. 1 and art. 11;

4. Anyone contrary provision writes out the last paragraph of art. 6.

If the cases referred to in paragraphs 2 and 3 above, the issuer rise drawer the available many before presenting the check, the penalty is reduced by half. When the issue is due to fact check excusable, the issuer will be protected from punishment. According to art. 103 of Law no. 58/1934, anyone who assigns a claim as provided by art. 100, knowing that when there is transfered, in whole or in part, the amount is not available, shall be punished by a fine of 5,000 – 100,000 lei and prisons up to six months, unless the fact constitutes a crime punishable with a heavier penalty, in which case the penalty will apply.

6. The crime of false accounting

In accordance with art. 43 of Law no. 82/1991, knowingly making false records, and failure of science in accounting records, resulting in distortion of income, expenditures, financial results and assets and liabilities elements reflected in the balance constitutes the offense of false intellectual and punished according to law.

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REPOSITIONING THE PENSION FUNDS AS INSTITUTIONAL INVESTORS ON THE ROMANIAN CAPITAL MARKET

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Abstract. *In this article, the authors emphasize the very important role that institutional investors, under the form of pension funds, hold for the development of capital markets existing in the economy and for supporting the financing process of institutional sectors in the financing deficit situation. For this, a short presentation of the main theoretical and empirical studies supporting this is made, as well as a personal analysis of the connection between pension funds and capital market development.*

Keywords: *institutional investors; pension funds; reform; capital market; Romania.*

JEL Codes: G10, G22, G23.
REL Code: 11B.

1. Introduction

The highly important role of institutional investors at the level of the entire economy has been the debate topic of numerous theoretical and empirical studies drafted until now. For this, the authors of this article perform a short presentation of the main theoretical and empirical studies supporting this, as well as a personal analysis of the connection between pension funds and capital market development.

2. Theoretical and empirical background for supporting the contribution of pension funds to the capital market development

In the economic literature existing until now, the very important functions of institutional investors are mentioned; these are attracting and transferring financial resources, risk controlling, and encouraging the financial innovation. These functions lead further to a development of the capital market by increasing liquidity and stock market capitalization existing on the market, to reducing the price volatility, to a more efficient assessment of assets, to integrating the capital market at international level, to diversifying the financial instruments existing on the market and to increasing the general financial stability (Davis, 1996, Vittas, 1998). Other effect of developing the institutional investors' activity, found by different economists along the time, was diminishing the trading and issuing costs on the capital markets on which they act (Hansen, Torregrosa, 1992, Hansen, Pinkerton, 1982).

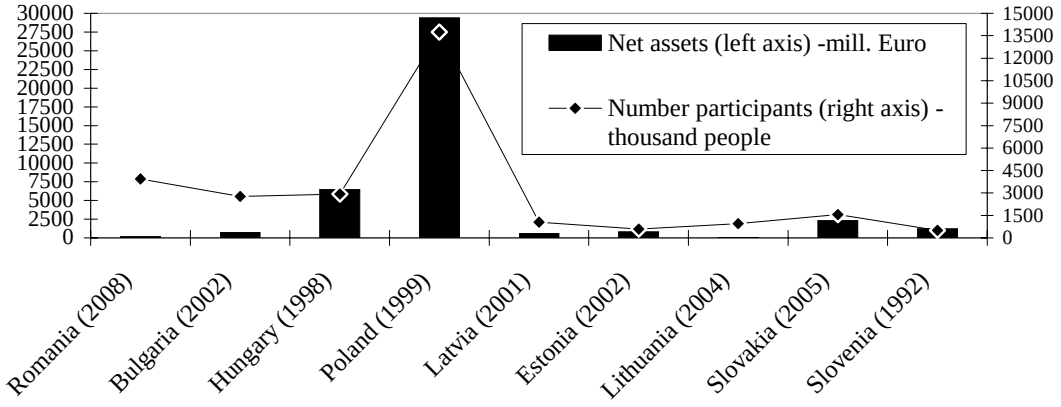
Studies that are more recent guided the attention towards quantifying, with the help of panel data, the existing relation between institutional investors and capital market development. One of the most recent studies is that of Aras and Müslümov (2006), that proves the positive relation between the two variables on a set of 23 OECD countries and for a significant period of time (1982-2000). They reach the conclusion, relying on a prior study of Sims (1972), that, in fact, between institutional investors and capital market development

there is a bidirectional connection in the meaning that institutional investors foster the capital market development that, on its turn, encourages the institutional investors to grow.

Within the institutional investors, *pension funds* have an important place due to their significant impact on the domestic capital market proven by the experience of other countries that finished well the reform of social security system. According to the opinion of some authors (Catalan et al., 2000), the pension funds, next to the insurance companies, hold an important role in the development of domestic capital market by comparison to the other categories of institutional investors (investment funds, banks). That is because they hold liabilities payable on a long term that assumes that they can finance the economy on a long term. Moreover, the regulations of the private pension system in each country assumes the mandatory idea of directing part of the private saving held by pension funds to the local capital markets. This thing transforms pension funds into very important players on the capital market, supporting it continuously.

Some authors refer to their positive impact on the capital markets, for the economies with developed financial systems, as well as for those less developed, the influence being somewhat diminished for the latter (Dayoub, Lasagabaster, 2007). Other emphasize the deepening of domestic bond and equity markets following the trading developed by the pension funds, as well as the increase of liquidity of these markets (Davis, 1995, Vittas, 1999; Catalán, 2004, Corbo, Schmidt-Hebbel, 2003, Andrade et al., 2007).

Considering these expectations, many countries proceeded to reforming the pension system, mainly in the Central and Eastern European (CEE) countries. These institutional investors have a real market force due to their high growing pace and the fact that their presence began to be felt more on the CEE domestic capital markets at the same time with implementing the 2nd Pillar. Of course, this did not happen simultaneously in all the CEE countries, a fact that generated different influences on the CEE domestic capital markets (Figure 1).



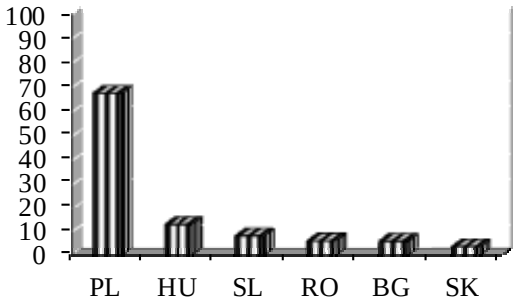
Source: data supplied by CSSPP (2010).

Figure 1. *Net assets and number of participants - 2nd Pillar (2008)*

Note: For each CEE country we have in the parenthesis the year of introduction of the 2nd Pillar.

As we can easily notice from the above figure, two of the countries which have introduced before 2000 the 2nd Pillar (Poland and Hungary) benefited in 2008 of the largest amount of net assets (29,408.86, respectively 6,520.01 million Euro) and some of the largest number of participants from the CEE countries (1,3740, respectively 2,920). Romania, the last one (from the CEE countries considered) who has introduced the 2nd pillar has obviously one of the lowest volume of accumulated net assets (166.08 million Euro).

According to the latest data provided, a ranking of the CEE countries considering the market capitalization of their stock markets in 2008 can bee seen in the figure below (Figure 2):



Source: data supplied by Eurostat (2010).

Figure 2. *Ranking of the CEE countries – market capitalization (2008) (bill.Euro)*

3. Place of pension funds on the Romanian capital market

At the same time with the Romanian capital market becoming more mature, there can be stated that the place held by institutional investors becomes more and more important, contributing to economic growth and to supporting the real economy. Such investors subscribe many of the initial public offers, this allowing the companies to support their expansion. The short and long-term bond market is influenced also by institutional investors that look for such investments due to the fact that payment liabilities have a great time length, due to which they accept to supply financing for issuing governmental, municipal, and corporate bonds. It is obvious the fact that institutional investors can influence the volume of trading on the capital market and thus, its development.

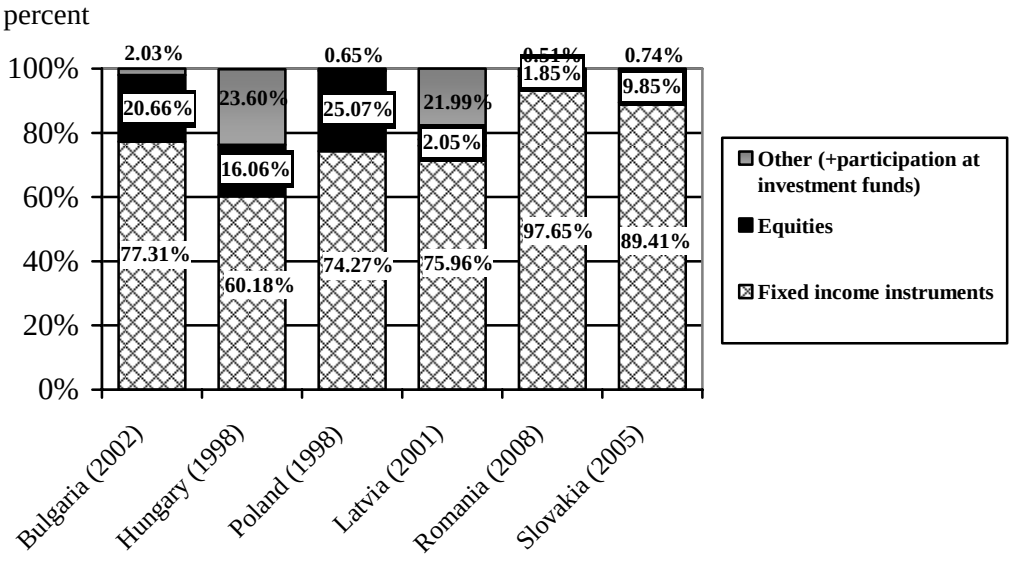
The reform of Romanian pension system began rather late by comparison to the other European Union member states from the Central and Eastern Europe and it implied the expansion of pensions system's bases by adding two more pension pillars next to the public pension(1). Thus, the activity of private pension funds was stimulated in an attempt to conclude a high volume of mandatory and facultative private pensions. The 2nd pillar (privately managed pension system) assumed the transferring of a 2% quota of the social insurance contribution to the public pensions system to the private pension funds. This percentage is meant to increase gradually up to 6 % by the level of year 2016, which will lead to an activity intensification. Of course, this will influence also the domestic capital market. The existence of the two pillars is an assumption of intensifying the activity of institutional investors under the form of private pension funds, in an attempt to find the adequate investment instruments. This leads inevitably to creating some diversified instruments on the capital market, to increasing the market liquidity and to a deepening of the general financial market.

From our point of view, the effect generated by the private pension funds is not visible yet due to two factors. Firstly, the uncertainty climate and massive loss registered on the capital market along the year 2008 lead to a reluctance of funds' administrators to invest in such instruments, preferring safer investments such as bank deposits and state bonds. Moreover, they are preferred also because there is this policy at the level of the management of the pension funds that in the first operation years over 70% of their assets to be invested in low-risk financial instruments (state bonds on medium and long term, bank deposits and accounts and fixed-income instruments). That is due to cautiousness reasons and for covering the provisions and guarantees imposed by law. In the next years the investments in instruments with higher risk will increase, such as those in equities on the Romanian capital market that will offer also the obtaining of higher yields.

Secondly, the impact of pension funds is still insignificant on capital markets which is due to the fact that the facultative pensions market (3rd pillar) just reached its 3rd operation years (since the first contributions to this system) in June 2010, thus the funds are still in their incipient maturity phases. The same might be said for the market of privately managed pension funds. The beginning of the activity of the pension funds in the 2nd pillar will be felt more and more, considering that the amount accumulated until now is not very big, and the percentage they may grant to equity market is not significant, the market of low-risk bonds

being too low on the capital market for an effect to be felt on it. Moreover, the 2.5 percentage designated to the privately managed funds is very low by comparison to other countries belonging to the European Union, located in the Central and Eastern Europe (Poland has 7.3%, Slovakia 9%, and Hungary 8%). Romania will not hold a better position from this point of view nore in the future, as against the mentioned countries; the maximum regulated percentage will reach just 6%.

As regards the structure of investment portfolios, for the EU member states located in CEE it may be noticed the great weight of investments in fixed-income instruments (Figure 3), while in other old member EU countries (Great Britain, Netherlands), the weight of assets invested in shares grew constantly in the last years (2001-2006). It is between 49 and 62%, while the investments in bonds were between 19 and 39%. From this point of view, Romania may be compared to the CEE countries having pension funds that have invested in bonds a great weight of held assets that although offer lower profitability rates, are more stable than those with greater weights in shares.



Source: realized by authors with data provided by CSA.

Figure 3. *Structure of the investments realized by pension funds in Romania and in other CEE countries, member of the European Union (%)*

4. Conclusions

As in the case of behavior of large investors, the behavior of institutional investors under the form of pension funds is a subjective behavior. It relies on its own analyses and forecasts, but it is believed that they hold more information, have a better general image on the market, knowledge, abilities and experience for managing money and securities than other investors. Due to this, they are supposed to be the "smart investors" on the market. Sophisticated and well informed, the institutional investors are those that set out the trend of capital markets in the whole world. However, it is true that low liquidity capital markets, such as the Romanian one, are also vulnerable to massive withdrawal of funds from those institutional investors in certain circumstances. The activity of institutional investors must be encouraged on the still emerging Romanian capital market because it will lead with certainty to a development of the domestic capital market and to strengthening its capacity to handle or to recover faster after financial instability periods.

We believe that the contribution that the private pension funds will bring to the capital market in the future will be significant, stimulating companies to be listed on the capital market and encouraging the occurrence of new financial products that they might purchase in order to diversify their portfolio. Practically, the private pension funds will have the role of forming the financial instruments demand on the capital market. Another important role that

the pension funds will have on the Romanian capital market will be to increase its quality by introducing the corporate governance mechanisms in managing the companies on the stock market, due to the fact they are interested that the operation manner of a company to be presented in the most transparent possible manner.

Note

(1) The 2nd Pillar was implemented only in 2008. By comparison, only the Czech Republic implemented the 2nd Pillar later (in February 2009). The other countries in the Central and Eastern Europe implemented it as it follows: Slovenia (1992), Hungary (1998), Poland (1999), Latvia (2001), Estonia (2002), Bulgaria (2002), Lithuania (2004), and Slovakia (2005).

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ON MODELLING THE PERFORMANCE OF NON-BANK FINANCIAL INSTITUTIONS – RESEARCH METHODOLOGIES

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Abstract. *The first step in any kind of research is to select the most adequate research methodology. There are a lot of research methodologies to chose from when one wants to engage in research regarding the development of financial performance models. Because of this abundance, there is a need to present the most important ones. In this paper I describe the research methodologies and research frameworks from different fields (e.g. social sciences, Information Systems) and show how my postdoctoral study relies on a combination of these research methodologies.*

Keywords: financial performance; research framework; epistemology; design science; constructivism.

JEL Codes: B41, C38, C45, D83, G23, G24, G32, G33.
REL Codes: 2B, 8C, 9B, 11B.

1. Introduction

Before we introduce the research methodologies, we have to explain the meaning of the term "methodology" which, depending upon the *context* in which it is used, implies two things. Firstly, it has a more concrete meaning related to a particular technique or combination of techniques *used* to model some kind of relationships (e.g. the relationship between the "class" variable and the input variables which define the performance of non-bank financial institutions). Secondly, "methodology" has a more abstract sense and refers not only to *what* was used to perform the research, but also refers to *how* this research was conducted (e.g. surveys, model building, case studies, etc.). In the later sense "methodology" is synonymous with a "super-methodology" that comprises all "sub-methodologies" used to conduct the research. This paper uses the latter meaning of "methodology".

The business problem of assessing comparatively the financial performance of non-bank financial institutions is a serious problem for the central-banks because by performing this type of analysis, the time and personnel resources can be better used: the central bank would allocate more resources to institutions which present a lower level of financial stability. There are methods that can be used to address the problem of modelling the performance of financial institutions. But, traditional statistical methods used to collect, clean, store, transform, and analyse financial data, while still in place and useful, need to be challenged. This challenge is provided by so-called Computational-Intelligence (CI) methods such as *machine learning*, *neural networks*, *evolutionary computation* and *fuzzy logic*. The Knowledge Discovery in Databases (KDD) process and its engine, Data Mining (DM), represent the umbrella under which the CI methods operate. Each business problem (real-world application) can be matched by many data-mining tasks depending on how we approach the problem. We match our real-world application (assessing comparatively the performance of non-bank financial institutions) with both DM clustering and classification tasks.

KDD and DM research lie at the confluence of many different disciplines and research fields such us *statistics*, *information theory*, *databases*, *artificial intelligence*, *machine learning*, *pattern recognition*, *fuzzy sets*, *visualisation*, and *high-performance computing*. The

cyclical and interdisciplinary nature of the Data-Mining research process makes us believe that our research cannot and should not be based on one single research framework.

2. Research methodologies for the development of Information Systems

2.1. Burrel & Morgan's / Iivari's research framework

Burrell & Morgan (1979) presents a perspective for a research framework in the social sciences. Among the natural sciences, which include research in the physical, biological and behavioural domains, social science plays an important role (Figure 1).

The subjective-objective dimension				
The subjectivist approach to social science				The objectivist approach to social science
Nominalism	←	ontology	→	Realism
Anti-positivism	←	epistemology	→	Positivism
Voluntarism	←	human nature	→	Determinism
Ideographic	←	methodology	→	Nomothetic

Source: Burrell and Morgan, 1979.

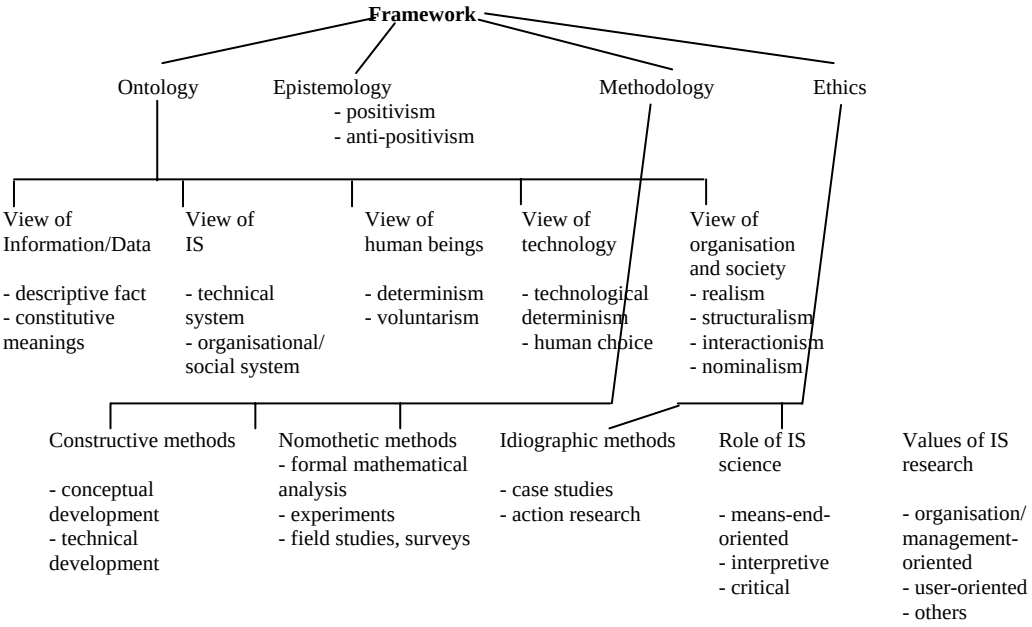
Figure 1. *A scheme for analysing assumptions about the nature of social science*

The research framework presented in Iivari et al. (1998) extends that from Burrell & Morgan (1979) and applies it in an IS development context. In Figure 2 I present in a concise form the framework proposed by Iivari *et al*. (1998).

However, the two frameworks differ in two ways. Firstly, Iivari *et al*. (1998) assume that dimensions of the paradigmatic analysis are *ontology*, *epistemology*, *research methodology*, and *ethics* while, for Burrell & Morgan, the paradigmatic assumptions about the nature of the social world and the way in which it may be investigated are: *ontology*, *epistemology*, *human nature*, and *methodology*. Secondly, Iivari et al. (1998) assume that all these dimensions are not mutually exclusive dichotomies because "an ISDA – Information System Development Approach – may simultaneously incorporate assumptions from more than one paradigm" as opposed to Burrell & Morgan (1979), where everything is black or white. According to dictionaries (e.g. Merriam-Webster online dictionary) the term "paradigm" signifies the *generally accepted perspective* of a particular discipline at a given time. In contrast with Burrell & Morgan (1979), Iivari et al. (1998) include the "human nature" dimension of paradigmatic assumptions in the ontology dimension and add "ethics" as a new paradigmatic dimension. Iivari's framework fits that of Fitzgerald & Howcroft (1998). The difference is that the former proposes an "ethics" dimension (what are the values that ought to guide IS research?), while the latter contrasts rigour and relevance in how the research should be validated (axiological level). In essence these two dimensions are equivalent, but with "ethics" we look more at the role of IS science (what this role should be) and at IS research value, while axiology is more concerned with the ways of producing research that is valuable.

According to Iivari et al. (1998), the paradigmatic assumptions that govern IS development research are defined as follows. The first paradigmatic assumption, *ontology*, is concerned with what is the nature of *information and data*, *information systems*, *human beings* as they are IS developers and users, *technology* and *human organisations* and *society* at large. There are two opposite ontological views as to the nature of reality: realism and

idealism (nominalism). *Realists* see data as describing certain facts, IS as a technically implemented system, humans as being governed by deterministic laws and organisations as being relatively stable structures, while *idealists* use data to "construct" rather than "reflect" reality. Idealists emphasise the social nature of information systems. Iivari et al. (1998) borrow the distinction between *determinism* and *voluntarism* in the view of human beings from Burrell & Morgan (1979). Determinists regard a human being or his activities as being completely determined by the situation or environment where they perform, while voluntarists see the human being as completely autonomous and free-willed. For idealists the organisations or what is the external world for an individual is nothing more than names, concepts and labels that are used to structure reality (Burrell & Morgan, 1979).



Source: Iivari, 1991.

Figure 2. *The framework for paradigmatic analysis*

The second paradigmatic assumption, *epistemology*, is concerned with what is human knowledge and how it can be acquired. In other words, epistemology is concerned with what should be the outcome of IS research. For some scientists (*positivists*) the outcome of IS research should consist of "highly generalisable methods and approaches assuming that IS research is governed by law-like regularities", while the others (*anti-positivists*) produce "constructs or metaphorical templates which could support IS developers with potentially useful insights that must be carefully evaluated anew in each project and situation". Positivist epistemology is based on traditional approaches that test hypothesised regularities. There are two opposite approaches as far as justification is concerned: *verificationism* and *falsificationism*. "Verificationists" think that hypothesised regularities can be verified by an adequate experimental research programme (Burrell, Morgan, 1979), while "falsificationists" (Popper, 1963) argue that scientists should concentrate on disproving claims, since one single counter/negative example is enough to disprove theories, while far greater positive claims cannot prove it to be true. For anti-positivists scientific knowledge evolves from the human interpretation and understanding of facts and can be achieved only by the individuals that are directly involved in the activities to be studied.

The third paradigmatic assumption, *research methodology*, is concerned with the preferred research methods for development of IS applications and with the modes of evidence-giving by which these research methods are justified. We have to stress, again, that, here, "research methodology" has an abstract sense and refers to the approach that is undertaken in the research rather than, for example, particular techniques used to model some

kind of relationships. As Iivari et al. (1998) point out: "The term *research methodology* in this context refers to the procedures (research methods) used to acquire knowledge about ISDAs (Information System Development Approaches) and ISDMs (Information System Development Methodologies), methods, and tools. The knowledge referred to in the context of ISDAs consists of the canons and principles needed to elaborate and refine the ISDA. This is analytically separate from the canons and principles which designers and users follow when building an IS application". Burrell & Morgan (1979) divide the research methods into two classes: nomothetic and idiographic. Iivari et al. (1998) add constructive methods as the third research methodology class, arguing that Information Systems and Computer Science are applied disciplines and require methods that should be concerned with the engineering of artefacts. These artefacts may be either conceptual artefacts (models, frameworks, procedures) or more practical artefacts (e.g. pieces of software). Nomothetic methods (formal-mathematical analysis, surveys, experimental methods, and laboratory and field experiments) are concerned with the scientific rigour of the research and use hypothesis testing and other quantitative techniques to analyse the data. Idiographic methods are based on first-hand knowledge of the subject under investigation and generate insights "revealed in impressionistic accounts found in diaries, biographies and journalistic records" (Burrell, Morgan, 1979, p. 6).

The fourth paradigmatic assumption, *ethics of research*, is concerned with the responsibilities that the researcher should acknowledge for the consequences of his/her research. There are two main concerns related to this paradigmatic assumption: the roles of IS research as an "applied" science, and the values produced by IS research. There are three potential roles for IS science (Chua, 1986, Oliga, 1988): means-end-oriented, interpretive and critical. Research from the first category aims at describing means for achieving different goals. The legitimacy of the goals is not questioned. Interpretivists assume that the world is inter-subjective and that science can represent the world with concepts and social constructs (Kvassov, 2002). Inter-subjectivity is the process of knowing others' minds. For interpretivists knowledge and meaning are acts of interpretation. The goal of interpretive scientist is to "enrich people's understanding of their action", "how social order is produced and reproduced" (Chua, 1986). Critical scientist assumes that research goals can be subjected to critical analysis just as well as means (Iivari et al., 1998). The values of IS research should be looked at from two perspectives: who benefit from the research, and whether IS research should be considered value-free research or not. IS users, IS professionals, top management can benefit from IS research. Positivists claim that research can and should be value-free (1), as opposed to antipositivists, who deny this possibility.

As I stated earlier Burrell & Morgan (1979) simplified the research framework by dividing the research approaches in two distinct classes. Iivari et al. (1998) show that this separation is too simplistic, especially, when applied to IS research: even though "idiographic methods appear more closely associated with the idealist ontological position", "some positivist case studies also appear to fall in this category". The authors cited Lee (1991), who integrated positivist and interpretative approaches. However, in order to make our life easier in making the decision regarding the research approach to be undertaken, it is advisable to follow the scheme presented in Figure 1. Realist ontology should be accompanied by a positivist epistemology and nomothetic research methods. This constitutes the objectivistic approach of Burrell & Morgan's scheme, as opposite to the subjectivist one that comprises: nominalist ontology, antipositivist epistemology and ideographic research methods.

The subjective-objective approach (Figure 1) to research in the field of IS is not the only dichotomist view that exist in the literature. Orlikowski & Baroudi (1991) propose two antagonistic approaches to IS research: *interpretive* versus *positivist*. Kaplan & Duchon (1988) contrast qualitative and quantitative approaches to IS research.

2.2. March & Smith's research framework

March & Smith (1995) present a two-dimensional framework for research in information technology (IT). This framework (Figure 3) can be applied as a research framework in the field of IS since the authors make no specific distinction between IT and IS as concepts.

		Research Activities			
		Design science		Natural Science	
		Build	Evaluate	Theorise	Justify
Research Outputs	Constructs				
	Models				
	Methods				
	Instantiations				

Source: March & Smith, 1995.

Figure 3. *A research framework in natural and design sciences*

For the authors IT is typically instantiated as IT systems, which are "complex organisations of hardware, software, procedures, data, and people, developed to address tasks faced by individuals and groups, typically within some organisational setting". While not falling within the scope of this section to differentiate the IT and IS concepts, it is worth mentioning that a distinction, however, exists in the literature: Checkland & Holwell (1998) state that IS research has to be looked at in the *context* of IT.

March & Smith take as reference Simon's (1981) work and state that IT research is about artificial as opposed to natural phenomena and that artificial phenomena can be both created and studied. There are two kinds of scientific interests in IT, *descriptive* and *prescriptive*. Descriptive research aims at understanding the nature of IT. Prescriptive research aims at improving IT performance (March, Smith, 1995). Therefore two distinct pieces of science, design (prescriptive) and natural (descriptive) sciences can contribute to IT research. Natural science is concerned with understanding reality – explaining how and why things are – and has two main research activities: discovery (generating theories, laws, etc.) and justification (activities that test theory's claims). Justification is the concern of the apostles of the two opposed ways of validation, "verificationists" and "falsificationists" described earlier. Design science is based on two research activities: *build* and *evaluate*. Design science is concerned with building artefacts and evaluating their practical performance.

There are four research outputs of the design science research: *constructs*, *models*, *methods* and *instantiations*. The constructs are the semantic elements that conceptualise problems within a domain and their solutions. Models constitute a set of statements that describe the relationships between constructs. Models need methods to be implemented. Instantiations are the final artefacts, limited in their scope and developed on the basis of constructs, models and methods. In IT research, instantiations can precede the complete definition of constructs, models and methods, by having designers rely on their intuition and experience.

The March & Smith (1995) framework supports the interactions between the two species of scientific activity: design and natural sciences that can be reciprocal. Firstly, natural scientists create theories that can be exploited by design scientists when constructing the models. However, natural science is not always able to explaining how and why an artefact works. Design science outputs (artefacts) can give rise to phenomena that can be the targets of natural science research (March, Smith, 1995).

2.3. Another methodology: Constructivism

As I mentioned earlier, Iivari added a new methodological level to his paradigmatic framework: constructivism. Constructive methods are concerned with engineering artefacts. The author distinguishes between two types of artefact construction: *conceptual development* (development of models, frameworks, and procedures) and *technical development*, which means the implementation of conceptual artefacts, for example, through programming languages. Kasanen et al. (1993) discuss the applicability of a constructive approach in management accounting research. The authors argue that a constructive approach means problem solving through the construction of organisational procedures and models. Constructions are entities that produce solutions to explicit problems. The usability of the constructions can be demonstrated through implementation of the solution. In management accounting research the constructions are called managerial constructions and address problems that come up in an organisation's life. An artificial language (Morse alphabet, computer programming languages) or, in the case of managerial accounting, a new budgeting system, a new performance benchmarking model, can be considered as examples of constructions. Constructions should not be mixed up with "constructs" from March & Smith (1995) design research. Design science instantiations can be viewed as a type of construction. Some authors (Järvinen, 2001, Lainema, 2003) consider, and I incline to agree, that design science and constructivism are one and the same approach. At the same time, Kasanen's constructions are similar to Simon's or Iivari's artefacts and with Järvinen's innovations.

3. The research approach taken in my post-doctoral studies

Hevner et al. (2004), an extension of March & Smith (1995), proposed seven guidelines to help researchers, reviewers, editors and readers to understand how to perform effective design science (constructive) research. They argue that these guidelines should be addressed in some manner if the design-science research is to be complete.

The *first* guideline suggests that the design-science must produce a viable artefact (in the form of a construct, model, method, or instantiation). In my post-doctoral studies, I shall follow this guideline by constructing *hybrid* models for assessing the performance of non-bank financial institutions.

The *second* guideline states that the objective of design-science research should be to develop solutions for *relevant* business problems. I shall address business problems such as the modelling of the performance of non-bank financial institutions with the means provided by the CI methods. In other words I use *new* methods for solving *old*, but still important, problems.

The *third* guideline is concerned with design evaluation. I shall evaluate my models by using several criteria: quantitative, such as quantisation error, accuracy rate or mean square error, or qualitative, such as fidelity with real world phenomena, form and content, and richness of knowledge (Järvinen, 2001) in the form of class predictions. Hevner *et al*. (2004) support this view: "IT artefacts can be evaluated in terms of functionality, completeness, consistency, accuracy, performance, reliability, usability, fit with the organisation, and other relevant quality attributes".

The *fourth* guideline suggests that the design-science research must provide clear and verifiable contributions in the area of design artefacts, design foundations and/or design methodologies. In the next papers I will present my contributions to using CI methods for addressing business problems. The contribution to the area of artefact design consists of presenting for each model the design steps that should be followed. My small contribution to design methodologies consists of positioning my research with regard to the many IS research frameworks available in the literature.

By using *rigorous* methods for constructing and evaluating our models I shall address the *fifth* guideline concerned with research rigour.

The *sixth* guideline (do design as a search process) is of particular importance for my studies. Design science research, particularly constructing clustering and classification models, is inherently iterative. Simon (1996) describes the design process as a generate/test loop. I shall develop my models iteratively, compare them to each other and apply the best for a particular case. It is unfeasible to test all possible solutions for a given problem. We have to restrict the models used, relying on *satisfactory* solutions for the specific problem. In my research I will follow the same idea comparing a certain number of satisfactory models. I will choose the best model for each experiment undertaken.

The *seventh* and last guideline is concerned with communicating the research. The research results have to be presented effectively both to technology-oriented as well as management-oriented audiences. I will follow this guideline by posing two types of research questions: business intelligence research questions, related to the business problems addressed, intended for managerial audiences, and technical research questions, related to CI methods, intended for technical designers.

4. Conclusions

In this paper I described different research frameworks that may be undertaken for doing research in the field of Information Systems. I compared the research frameworks, pinpointed their differences and showed how they can be mixed together in the case of Data-Mining research studies.

In my postdoctoral research studies I shall use a pluralistic research strategy emphasising constructivism (Iivari et al., 1998, Kasanen et al., 1993). All seven guidelines for doing effective constructive research (Hevner et al., 2004) are satisfied as explained in Section 3.

A research study without a research methodology/framework upon which it can be based will not be easily embraced by the research community.

Acknowledgements

This work was supported from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/89/1.5/S/59184 „Performance and excellence in postdoctoral research in Romanian economics science domain".

Note

(1) Pearson (Pearson, 1900) claimed that the essence of science is the accumulation and classification of "facts". In 1930's the apologists of the logical positivist movement made an even more explicit demarcation of statements into two categories: positive and normative. Positive statements are statements of fact, while normative statements are statements of opinion. Popper (1963) was opposed to logical positivists and argued that there are no pure statements of value-free or "positive" facts and that all facts carry out value.

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DYNAMICS OF THE DEVELOPMENT AND INTEGRATION OF THE ROMANIAN RETAIL BANKING SECTOR

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Abstract. *The creation of a common market for goods and services represents the main focus of the European Union, a key element of this process being represented by the integration of the financial sector. One of the least integrated components of the European financial system is represented by the retail banking sector. As Romania has ascended to the European Union in 2007 we consider important to underline the progress that has been made in the integration of the Romanian banking sector. The aim of this paper is to present in a non-exhaustive meaner the main dynamics and achievements that have been made in the development and integration of the Romanian banking sector. In order to achieve this we use an analysis based on the law of one price and the studying of the competition level that exist on the Romanian retail banking sector.*

Keywords: integration; development; retail banking; law of one price; competition.

JEL Codes: G21, F15, F39, N24.
REL Codes: 3D, 10I, 11C, 14K, 20B, 20E.

1. Introduction

The development of a common European market for goods and services – including that of an integrated retail banking sector – represented a main focus for the European Union in the last decades. The way such a bold objective can be meet is through the deepening of the financial integration process. In regard to the integration of the retail banking system this process can generate tremendous opportunities for the European banks to expend their businesses in a pan-European way, obtaining grate benefits from the economies of scales that they could achieve through such a business model. For the retail banking clients the benefits that could result as a result of the deepening of such a process are represented by the enhancement of access to a wider range of products and services at an optimal cost/benefits ratio. It is estimated that at the European Union level there are approximately 50 million retail banking clients.

Taking in to account the importance of the retail banking sector, we consider the opportunity for a study that will underline the main dynamics regarding the development and integration of the Romanian retail banking sector. In order to achieve this we have organised the following study like this: the second section of the study presents the main methodology used in the study and also provides a brief literature review regarding the subject; section three of the study underlines the dynamic development of the Romanian retail banking sector, providing a comprehensive look at his process; section four is focused on the integration process of the Romanian retail banking sector underlying the main achievements and stressing out the barrier that still exist; and section five contains the final conclusions of the study.

2. Methodological considerations

The European banking sector has undergone to a series of profound changes in the last decade, which have been summarised in various academic studies, both empirical and

qualitative (Groeneveld, 1999, Amel et al., 2004, Gual, 2004). First of all the liberalisation and integration of the European financial markets and that of the payment systems has put tremendous pressure on the traditional lines of business which banks used.

As a response to these changes the European banks have universalised and diversified their activities especially in the case of the retail banking sector, offering: insurances, the sale of mutual investment funds units, taking on private banking and the management of investment portfolios. In the same time, insurance companies and pension funds have developed their services and products portfolios, providing viable alternatives to retail customers regarding their investments and savings options (Goddard et al., 2007). As a result of these developments the line between banks and other financial intermediaries has become more blurred (Rajan, Zingales, 2003, Van der Zwet, 2003). *In the same time, because of the European integration process more and more European banks have developed a pan-European network, through branches and subsidisers, which has enhanced the level of competition on several European banking markets* (Lensink, Hermes, 2004, p. 5).

Despite the legislative effort in order to stimulate and harmonise the integration of the banking sector at European level and the high degree of integrastion registered on the monetary, bonds and stock markets (Emiris, 2002, Hartmann et al., 2003, Baele et al., 2004, Manna, 2004, Guiso et al., 2004, Cappiello et al., 2006) most of the academic evidence points to a less integrated retail banking sector (Dieckmann, 2006, Goddard et al., 2007, Staikouras et al., 2008, Schäfer, 2009).

The main barriers identified by the academic literature that hinder the deepening of the integration of the retail banking sector are represented by the local economical environment, the cultural and linguistic barriers that exist, and nevertheless by the legal and fiscal system that are in place and which tend to be very heterogeneous (ECB, 2010, Berger et al., 2001, Buch, Heinrich, 2002, Berger et al., 2003).

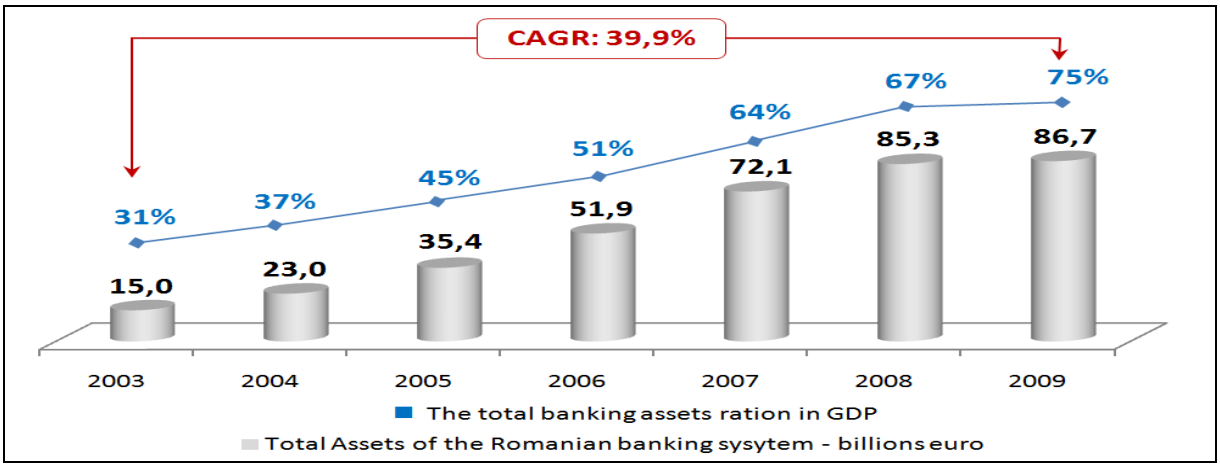
In order to underline the progresses made in the integration of the Romanian banking sector we will use the methodology set for *the law of one price*. In order to completely underline this complex process we will also analyse the changes that had happened in regard to the competition level that exists in the Romanian retail banking sector.

Acording to the law of one price as a result of enhanced integration the nominal intrest rates from the different states of the Union should registerd a convergence process toward the most low level registerd (for detail methodological considerations regarding the law of one price see the paper of Quiros et Mendizabal, 2001; Fernández de Guevara et al., 2003; Baele et al., 2004). Testing also the convergence of real intrest rates underlines also the integration of all the components of the economy which affect the level of intrest rates.

3. Development of the Romanian retail banking sector

At this point the Romanian retail banking system is at a cross-road. The manifestation of the financial crisis started in the summer of 2008 cooped with the economic depression has deteriorated the retail portfolio held by the banks that are active on the Romanian banking market. This is a direct effect of the diminishing of the medium wage and the rise in unemployment. Despite the low percentage of bad credits, the high rate of late payments related to the existent credits raises the pressure on banks' ability to obtain profits, mainly because of the high degree of provision that they must own taking in to consideration the current developments. In this context the main focus of the retail banking activity since the start of the economic down turn has been shifted from the expansion of the credit activities, which characterised the period prior to the summer of 2008, to a strategy concerned with the management of the existing credit portfolio. Moreover, there is a constant pressure on the diminishing of costs which pushes the Romanian banks to further re-evaluate their operational network capacities, their cost structure, their credit portfolio and also their short and medium term business plans.

The total assets of the Romanian banking system were at the end of 2009 at 87.3 billion euro, registering a rise from the previous year with a 2.7%. If we analyse the per capita ratio, then at the end of 2009 this value was of 4065 euro, a slightly higher value than the one registered in the previous year. This is mainly because of a slight change in the exchange course at the end of 2009, which provided a stronger national currency.

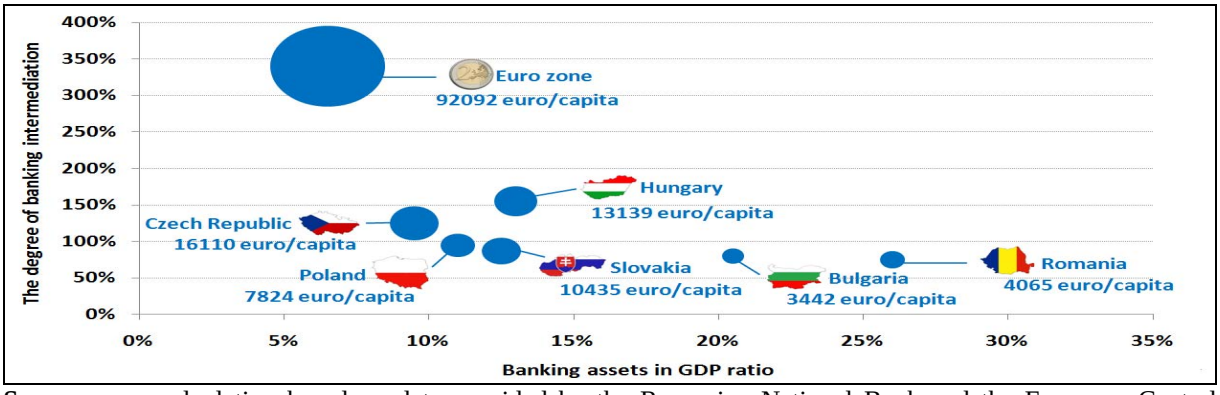


Source: own calculation based on data provided by the Romanian National Bank and the European Central Bank.

Figure 1. *The evolution of the romanian banking assets between 2003 and 2009*

In regard to the development of the Romanian banking sector we can see that the degree of financial intermediation is still low when compared with other European countries from the region or with the euro zone average. Thus, despite a rapid development of the Romanian banking system registered in the last year there is still an unexploited potential for growth.

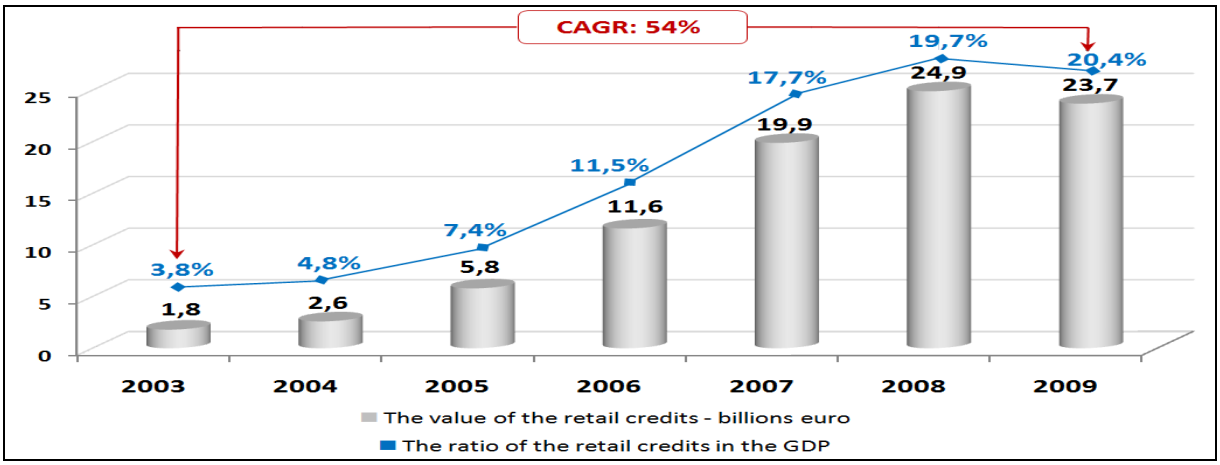
The ration between the retail deposits and credits has registered a steady raised between 2002 and 2008. Since the start of the financial crisis in the summer of 2008 this ration has decreased reaching a value of 120% at the end of 2009 down from 131% at the end of 2008. In another train of thoughts the ratio of retail deposits in total deposits attracted by the Romanian banking system has steadily increased, from 50% in 2002 to above 60% at the end of 2009, this fact underling the importance of the retail segment for the Romanian banking landscape.



Source: own calculation based on data provided by the Romanian National Bank and the European Central Bank.

Figure 2. *The development of the banking sector in different European countries*

In regard to the evolution of the retail credits, these have know a period of strong development between 2002 and 2008, especially as a result of the aggressive promotion of consumer credits (the so called "*ID credits*") followed by freeze in development in 2008 and 2009 as a result of the financial crisis and the economic depression. The average rate of growth in these last two years was about 0.5%, reaching at the end of 2009 a value of approximately 24 billion euro. Moreover the projections made by the Romanian Central Bank for 2010 suggest a decreasing in the retail crediting activities of about 6%, as a result of de depreciation of the economic-financial environment as a result of the measures undertaken by the Romanian Government.

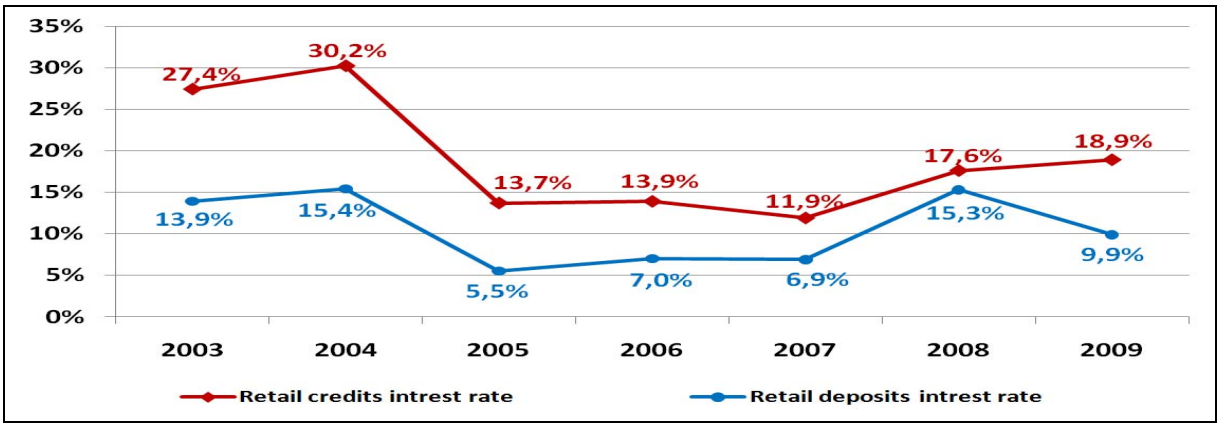


Source: own calculation based on data provided by the Romanian National Bank and the European Central Bank.

Figure 3. *The evolution of the retail credits in Romania between 2003 and 2009*

According to the data provided by the Romanian National Bank and the European Central Bank, at the end of 2009 approximately 72% of the Romanian retail credits were represented by consumer credits, while the mortgage credits represented only 25%. Despite the recent raise of the volume for mortgage credits in the last time the level registered by the Romanian retail banking sector was well below the European average (e.g. at the end of 2009 mortgage credits represented approximately 70% of the total retail credits in the Czech Republic, while in Hungary the ratio stood at 51%). The volume of mortgage credits reach 6 billion euro at the end of 2009, approximately 18% higher than at the end of 2008, while consumer credits were down 2.4%, reaching 17.2 billion euro for the same period of time. These last evolutions can be attributed to the implementation of the "*First House Project I & II*", which has somehow stimulated mortgage retail lending while the consumer credit was negatively affected by the depreciation of the Romanian economic-financial environment.

After a long period in which the interest rates have had a descending trend, both in regard to the retail credits and deposits, starting with the summer of 2008 the trend have registered a switch, the retail interest rates started to grow. This development is partially explained by the Romanian National Bank policy which, starting with 2007, in order to better control inflation has raised the monetary policy rate several times and on the other hand the depreciation of the economic-financial environment had also played a central role. Despite the monetary policy interest rate was diminished several times, starting with January 2009, in order to stimulate the credit process, this policy didn't had the desired effect on the Romanian retail banking market.



Source: own calculation based on data provided by the Romanian National Bank and the European Central Bank.

Figure 4. *The evolution of the retail deposits and credits interest rates in Romania between 2003 and 2009*

In regard to the structure of the Romanian banking market, there are 42 banks that are currently active on the market, from which 9 are branches of foreign banks. Most of the banks are universal commercial banks, offering a complete range of retail banking services and products. In another train of thoughts the development of the distribution channels for the retail banking sector in Romania, after a period of high development between 2002 and 2008, was put on hold, most of the banks announcing their delay of their expansion plans.

Based on the analysis undertaken we can conclude that the Romanian retail sector has registered a strong development as a result of the European integration process. Also we can observe that, despite the low degree of penetration that the financial services are having in Romania, the banking sector has been affected by a crises which cannot be totally attributed to the international financial turmoil. Nevertheless, we consider important to underline the fact that the Romanian retail banking sector has a high potential for development, this system having the possibility to benefit from the latest technologies in the field and implicit having the possibility to compress development stages which it needs to undergo.

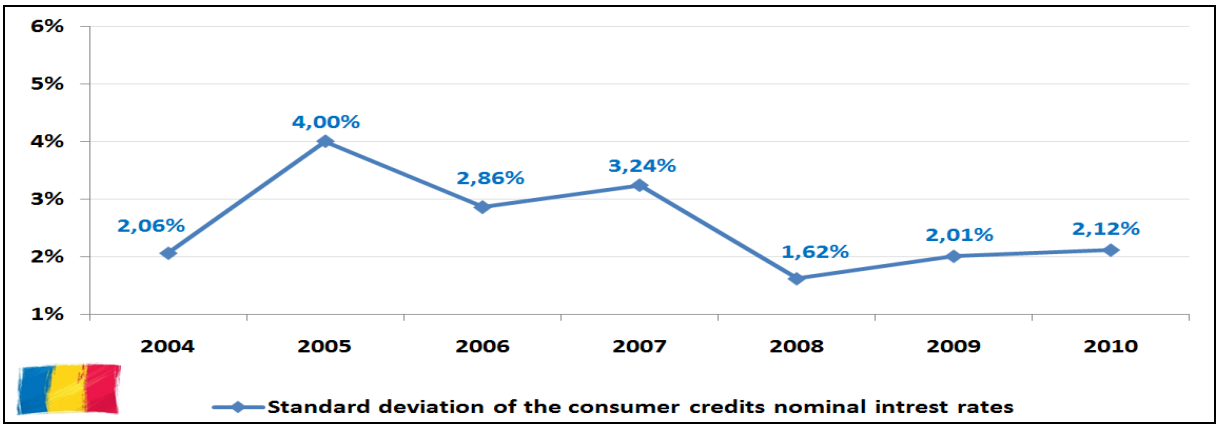
4. Integration of the Romanian retail banking sector

In order to obtain a comparable analysis regarding the degree of integration in the case of the Romanian retail banking sector we will use a panel composed by the main economies from the region who are also members of the European Union. We consider this approach more feasible because: 1) most of the economies in the area which are also part of the European Union have the same centralised background as the Romanian economy has, which underlines their need to go first through a transition phase from the centralised to the free market model in order to later ascend to the European Union; 2) the macroeconomic evolutions in the Romanian economy have been more correlated with the development from these proxy economies rather than the ones registered in the euro zone for example; 3) both in the case of Romanian and the case of these state the currency exchange risk plays a major role in the development of the economy; 4) and nevertheless, the evolution of the retail banking system from Romania will tend to follow the same general path set forth by these states, before it will reach the necessary maturity and development which will allow the adoption of the single European currency and the entering in the euro zone.

Taking these aspects in to consideration we will use in our panel as reference state: Hungary, Poland, the Czech Republic and Slovakia.

We will start our analysis by comparing the convergence of the nominal and the real interest rates for retail credits, more exactly general purpose credits for retail customers. We have taken in to consideration these interest rates because the general purpose credits

represent the main category of credits granted to retail customers in Romania, this fact being underlined also in the previous chapter.

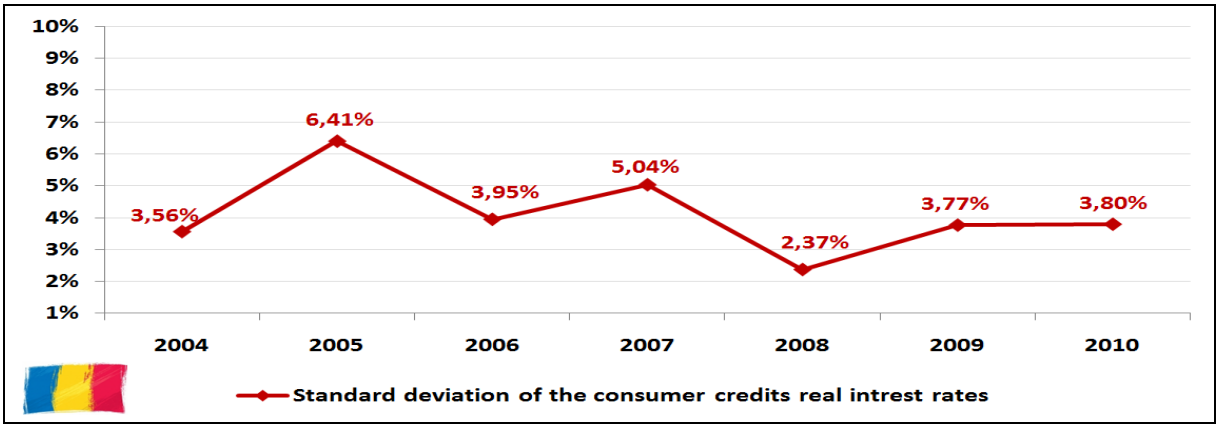


Source: own calculation based on data provided by the Romanian National Bank and the European Central Bank.

Figure 5. *The convergence of the nominal interest rates for consumer loans in Romania, Poland, Hungary, the Czech Republic and Slovakia*

As we can observe form the analysis of the convergence of the nominal interest rates, we can observe a deepening of the integration process of the retail banking sector from Romania and an alignment with the European trend, which tends to confirm the *law of one price*. In order to obtain a more clear view of the convergence process we will also analyse the convergence of the real interest rates for the same type of credits.

We can see form the analysis undertaken that in the case of the real interest rates there is a high risk for divergence between 2005 and 2007 which can be attribute to a deficiency in obtain a macroeconomic stability, especially in the case of Romania. By contrast, in Slovakia and Poland in the same period there has been made a great deal o progress in normalising several macroeconomic indicators like the exchange rates and the degree of economic growth (which despite being relatively medium it was maintained for several years).



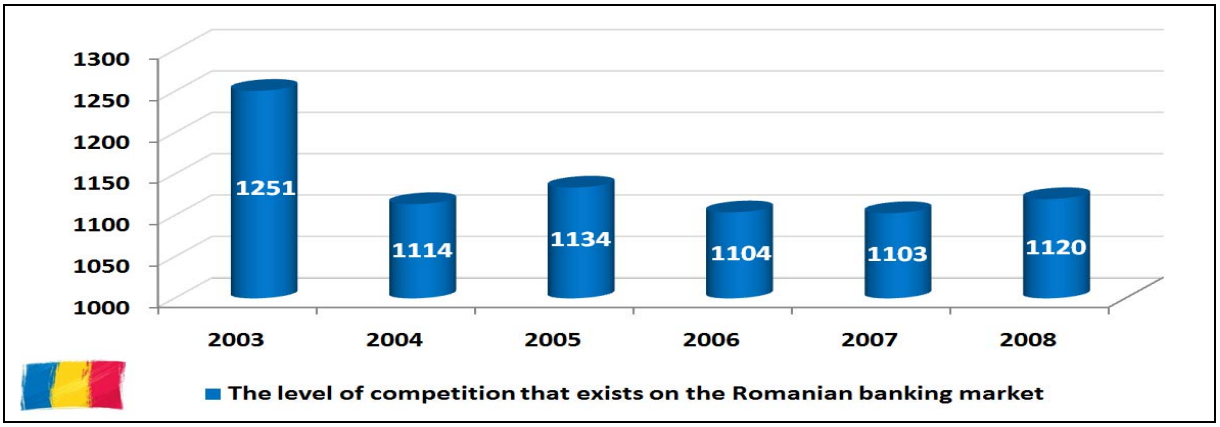
Source: own calculation based on data provided by the Romanian National Bank and the European Central Bank

Figure 6. *The convergence of the real interest rates for consumer loans in Romania, Poland, Hungary, the Czech Republic and Slovakia*

These evolutions underline the fact that in the case of the Romanian banking sector there are several other factors which are having a direct effect on the integration process, other than the ones directly linked to it. A few of these factors are represented by: *the stabilisation of the macroeconomic environment, the opening of the capital account, the enhancement of*

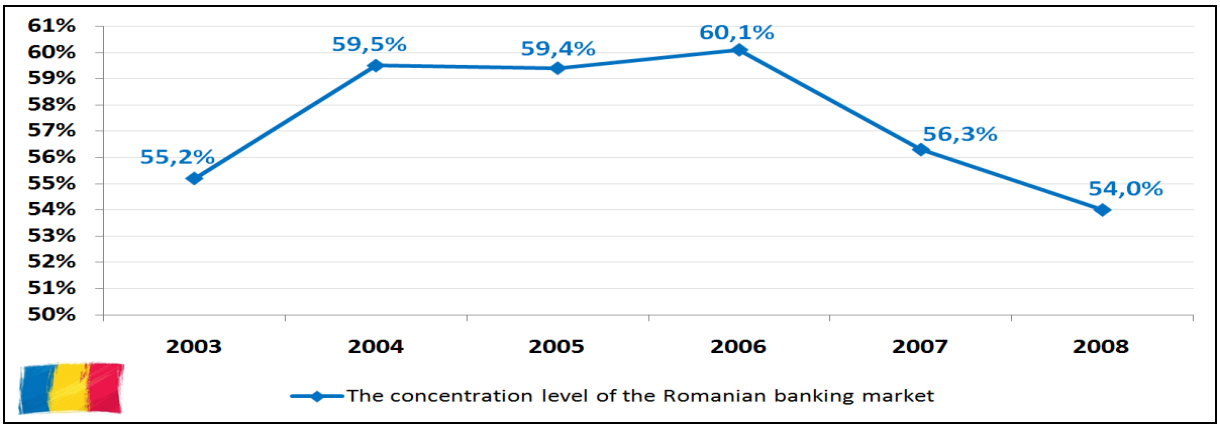
the presence and influence of the foreign investors on the Romanian capital markets, the integration of the European interbank markets and nevertheless the high presence of foreign banks on the Romanian banking sector (both through subsidiaries and branches of the European banking groups).

In this context it becomes interesting an analysis of the evolution of the competition level that exist in the Romanian retail banking sector. Even if we can distinguish between retail and corporate development, all the Romanian major banks have a strong retail component, considering this segment a key feature of their business plans.



Source: own calculation based on data provided by the Romanian National Bank and the European Central Bank.

Figure 7. *The evolution of the Herfindhal index which provides a look at the competition level of the Romanian banking sector between 2003 and 2008*



Source: own calculation based on data provided by the Romanian National Bank and the European Central Bank.

Figure 8. *The evolution of the assets of the top 5 romanian banks between 2003 and 2008*

From our analysis we can see that that the Romanian banking sector has registered a consolidation of the activity, as a result of the diminishing of the competition level that existed on the market. Especially the bigger banks have undertaken several aggressive campaigns which have solidified their presence on the market making it more difficult for smaller competitor to develop lucrative niches. We can also observe that as a backlash of the financial crises and of the economic depression that has hit our country since the mid of 2008, the share of the top five banks has dropped with almost 10%, but the Herfindahl index has registered approximately the same values. This indicates a relative stability regarding the competition level on the market, while the banking assets have been spread around more. This is an effect of the rationalisation of credit by the bigger banks, which have diminished their share of the

market in relationship with the consolidation of the smaller competitors which have tried to freeze and solidify their assets.

Based on the analysis undertaken we can extract two main characteristics of the Romanian retail banking sector: on the one hand, the total share of the assets held by foreign banks exposes the system to international risks (for a good example in this case we can bring the semi-panic developed as a reaction to the Greek crisis) while, on the other hand, the presence of foreign banks (and especially the ones from western European Union countries) has help the development of the retail banking sector starting since the late '90 but hasn't provided a substantial diminishing of cost related to the products and the services which are offered by this sector.

5. Conclusions

Correlating the results of the two analysis undertaken we can conclude that the integration process of the Romanian retail banking sector are present but felt short of expectations. However, we must underline that the deepening of the Romanian retail banking integration process depends now in a greater sense to market and collateral (e.g. the changing of the banking offers, the economic-financial stability, the adaptation of the single European currency) factors and less on issues which can be regulated and harmonised away. *This is the reason why we consider the integration and development of the Romanian banking sector a process underway, far from being complete, which has just entered in the fundamental changes phase, which will take some time to be achieved but surely will provide greater benefits*.

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DYNAMIC PERSPECTIVE ON THE TRIANGLE FOREIGN DIRECT INVESTMENTS – EXCHANGE RATE – CAPITAL MARKET

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Abstract. *This paper focuses on the triangular causal relationship between foreign direct investments, exchange rate and capital market at the level of the CEE countries. For this purpose, we use the weight of market capitalization of listed companies into GDP as proxy for the degree corresponding to the stock market development, the variability of the exchange rate as proxy for the macroeconomic environment and weight of foreign direct investments into GDP as a proxy for the country's capacity to attract foreign investors and to recover some macroeconomic deficiencies. The perspective is a dynamic one, conceiving each variable as a cause and effect in the system of relashionships.*

Keywords: FDI; exchange rate; market capitalization.

JEL Codes: C50, F20, G20.

Introduction

Foreign Direct Investments (FDI) in CEE area have recorded a consistent upward trend during the last 15 years. Since financial inflows have been considered as supportive to macroeconomic stabilization, countries have resorted to various measures that aimed to render themselves more attractive in the eyes of foreign investors. The system of measures included the elimination of restrictions, the privatization of state-owned companies and the reduction of fiscal pressures as well as consistent subsidies. Meanwhile, the foreign direct investments generated important positive effects from the perspective of the employment increase and the extension of the range of products and services.

Due to the propagation in chain of positive effects triggered by the foreign direct investments, there is a consistent literature on this topic; a special emphasis has been placed on the determinant factors that encourage the increase of foreign direct investments (Tomlin, 2000). Moreover, several studies conceived foreign direct investments not only as a receptor, but also as a trigger of other economic phenomena such as stock market development or budget deficit reduction (Klein, Rosengren, 2002).

Ever since 1983, Errunza revealed that foreign capital inflows exert an impact on stock market. Later, Yartey (2008) pointed out that foreign direct investment implies a consistent institutional and regulatory framework, convenient disclosure and listing requirements and fair trading policies, generating investors' confidence. The positive perception among investors determines the increase of the investor's base and participation, which attracts subsequently more capital inflows.

Garcia and Liu (1999), Yartey and Adjasi (2007) have examined the relationship between foreign direct investments and other macroeconomic variables, highlighting the complexity of the interactions between variables. Singh (1997) identified a positive

relationship between economic growth, stock market development and foreign direct investments. Kiyota and Urata (2004) underlined that FDI complements domestic private investment and enhances technology transfer. More recent studies brought forth the idea that foreign direct investments are associated with institutional and regulatory reform, adequate disclosure and fair trading practices, which generates more confidence in the market.

This paper focuses on the triangular causal relationship between foreign direct investments, exchange rate and capital market at the level of the CEE countries. For this purpose, we use the weight of market capitalization of listed companies into GDP as proxy for the degree corresponding to the stock market development, the variability of the exchange rate as proxy for the macroeconomic environment and weight of foreign direct investments into GDP as a proxy for the country's capacity to attract foreign investors and to recover some macroeconomic deficiencies.

2. Methodology

The methods that are valorized in order to analyze the time series consist of co-integration and impulse-response functions derived out of a Vector Error Correction Model.

The VECM model can be specified at the level of every country as:

$\Delta X_t = \delta_0 + \Gamma_1 \times \Delta X_{t-1} + \Gamma_2 \times \Delta X_{t-2} + \Gamma_3 \times \Delta X_{t-3} + \alpha \times \beta" \times X_{t-1} + \varepsilon_t$

Where

X_t = (log(FDI/GDP), log(MK/GDP), log(VAR_EXCH_RATE))

FDI/GDP = The weight of foreign direct investments into the Gross Domestic Product

MK/GDP = The weight of market capitalization of listed companies into the Gross Domestic Product

VAR_EXCH_RATE = The quarterly dynamic of the exchange rate

$\delta_0 = \Gamma_0 - \alpha \times \beta_{0,}$

ε_t N(0, Ω)

Vector error correction model is concentrated on two key parameters such as α and β.

β" matrix represents the cointegrating vector and incorporates long-term relationships between the endogenous variables.

α matrix reflects the dynamic adjustment of the endogenous variables to deviations from long-run equilibrium depicted by $\beta" \times x$.

Granger (1981) introduced the concept of co-integration techniques that is helpful for the long-run relationships, solving out the difficulty implied by non-stationarity. Cointegration methodology demands all the variables to be integrated of the same order; this determines the necessity for the variables to be subject to the unit roots test performed by the intermediary of the Augmented Dickey-Fuller and Philips-Perron approaches.

3. Empirical approach and discussions

The first step in the empirical approach is represented by the unit root tests that aim at identifying the characteristics of the variables in terms of stationarity (Table 1). The variables are subject to the tests in levels and first differences. The statistic output reveals the fact that the variables are integrated of order one, highlighting the transitory dimension of shocks. This finding is consistent with previous works on the characteristics of the macroeconomic environment in CEE countries (Triandafil, Brezeanu, 2009).

Since variables proved to be integrated of the same order, the next step in the analysis process is represented by the cointegration tests.

Based on the Akaike information criterion (AIC), we selected the lag length 4 for the estimation. Trace test and maximum eigenevalue test permit the rejection of the null hypothesis of no integration for both tests, which reveals a long-run relationship between variables (Table 2).

Table 1

Unit root tests

	ADF Test		PP Test	
	Levels	1st Difference	Levels	1st Difference
FDI/GDP	-1.3345	-3.0677	- 2.9546	-14.8857
MK/GDP	-1.6790	-3.2257	-3.6645	-1.7688
VAR_EXCH_RATE	-1.9954	-3.7082	-1.3685	-3.2556

The statistic output corresponding to the co-integration test allows us to follow up the impulse-response functions in order to determine the special features of the variables' interactions, with a focus on the manner in which foreign direct investments are inter-related with the system of financial indicators.

Table 2

Cointegration test

Trend assumption	Test	Lag	r=0	r≤1	r≤2
Linear deterministic trend	Λ_{trace}	4	22.65 [0.03]	5.43 [0.44]	0.88 [0.22]
	Λ_{max}	4	19.44 [0.01]	6.03 [0.54]	0.73 [0.29]

Note: Values in [ ] represent p-values.

First, analysis will conceive foreign direct investments as a trigger for the other variables. We assume that under the impact of important foreign direct investments, exchange rate is likely to fluctuate in the sense of a national currency appreciation. Moreover, capital market is likely to develop and to improve its liquidity and capitalization indicators under the impact of important financial flows.

As for the relationship between foreign direct investments and exchange rate, Czech Republic reflects a quite positive impact during the whole period of analysis, meaning that under the influence of important foreign direct investments, the exchange rate tends to reflect an appreciation of the national currency; this effect can be remarked at the level of the other countries as well, but what it differentiates this impact is precisely the period of time during which it is obvious (Annex 1).

In case of Hungary and Bulgaria, the effect is not exerted in a linear manner, but with slight modifications from one period to another.

If we had to divide the whole period into sub-periods, we would remark that during some periods of time the effect is positive while during other periods of time, the effect is negative.

In case of Poland and Romania, the negative impact is continuously exerted during the whole period of time. An analysis at the level of the standard deviation(1) relative to the exchange rate permits us to construe this permanent negative effect. The fluctuation of the exchange rate is the highest in case of Romania and Poland, suggesting that in these countries the volatility of the exchange rate was due to severe macroeconomic disequilibria during this period of time; in fact, despite the high level of foreign direct investments, the structural disequilibria reflected in the exchange rate fluctuation was not compensated.

As for the impact exerted by foreign direct investments on the weight of market capitalization of listed companies into GDP, we remark that in case of Bulgaria and Romania the impact is consistently positive, meaning that financial inflows supported to a high extent the development of capital market; in other countries, such as Cezch Republic, Hungary and Poland, the impact is not significant.

One interesting aspect consists of the fact that precisely in the countries where the capital market is developed (aspect demonstrated by the highest weight of market

capitalization into the Gross Domestic Product) such as Hungary, Czech Republic and Poland, the impact is not significant.

This finding is supported by the evidence that capital market has evolved under the impact of other factors in these countries (El-Wassal, Kamal, 2005) so that foreign direct investments influence is of low importance.

Switching the analysis to the foreign direct investments as a receptor of the effects exerted by the other variables, we remark a higher degree of heterogeneity at the country level.

In case of Romania, the foreign direct investments react to exchange rate, but only in the negative direction, meaning that it recorded a decrease trend under the influence of the exchange rate fluctuation.

We can appreciate that the high level of volatility recorded by the exchange rate determined a certain reluctance of foreign investors in respect of de-locating their operations in this country.

The same negative effect is remarked in case of Bulgaria and Poland. In fact, in case of Bulgaria, the dynamic is significantly non-linear; there are short periods of time when the foreign direct investments reaction to exchange rate impulse is positive, but this dynamic is followed up a by a different reaction.

The most complex dynamic is recorded in case of Czech Republic; foreign direct investments react to the impulse of the exchange rate in a significantly positive manner, despite the fact that in the beginning of the analyzed time-period, the impact was negative. Regarding the standard deviation corresponding to the exchange rate, Czech Republic did not registered a high fluctuation at the level of the exchange rate, which explains its positive impact on the foreign direct investments. Since exchange rate did not record significant volatility, a quite stable national currency can act as a driver of foreign direct investments.

As for the impact exerted by capital market on foreign direct investments, we find that this impact is of a positive nature especially in case of Hungary and Romania. In these countries, the degree of capital market development is the lowest in the CEE region. In case of Poland, which registers the highest weight of market capitalization into GDP, the impact is quite weak. These findings are in opposition with our initial assumptions that presumed a real impact of capital market on foreign direct investments in the countries where capital market is strongly developed.

Focusing on the manner in which capital market development is inter-related with the other variables, we remark that in case of Hungary and Poland it reacted in a significant manner to the impulses of exchange rate while in case of Romania, Czech Republic and Bulgaria, the reaction was of a lower intensity.

As for capital market reaction under the impact of foreign direct investments, the findings are really interesting; in all cases, the weight of market capitalization of listed companies into GDP react in a consistent manner under the impact of foreign direct investments, suggesting that

Conclusions

This paper focused on the triangular causal relationship between foreign direct investments, exchange rate and capital market at the level of the CEE countries. For this purpose, we used the weight of market capitalization of listed companies into GDP as proxy for the degree corresponding to the stock market development, the variability of the exchange rate as proxy for the macroeconomic environment and weight of foreign direct investments into GDP as a proxy for the country's capacity to attract foreign investors and to recover some macroeconomic deficiencies

The statistic output revealed the fact that the variables are integrated of order one, highlighting the transitory dimension of shocks. This finding permitted the co integration tests which revealed important findings. The analysis focused on foreign direct investments both in

the position of determinant factor for the dynamic of the other macroeconomic indicators, as well as in the position of a receptor of the effects exerted by the other variables.

The analysis permitted us to remark a higher degree of heterogeneity at the country level.

As such, Czech Republic reflects a quite positive impact during the whole period of analysis, meaning that under the influence of important foreign direct investments, the exchange rate tends to reflect an appreciation of the national currency; this effect can be remarked at the level of the other countries as well, but what it differentiates this impact is precisely the period of time during which it is obvious (Annex 1).

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The most complex dynamic is recorded in case of Czech; foreign direct investments react to the impulse of the exchange rate in a significantly positive manner, despite the fact that in the beginning of the analyzed time-period, the impact was negative.

The findings of this paper must be interpreted in the context of the limitations imposed by the CEE area peculiarities in terms of macroeconomic environment.

Further research will concentrate on the enlargement of the database at the level of the variables that are integrated as well as at the level of the time-period the analysis is conducted on.

Acknowledgements

This paper is supported by the CNCSIS – TE research grant, code 349, no.36/2010 development of statistical and econometrical tools for the analysis of the location process of the foreign direct investments at the regional level in Romania.

Note

(1) For space reason, the descriptive statistics have not been included in the paper.

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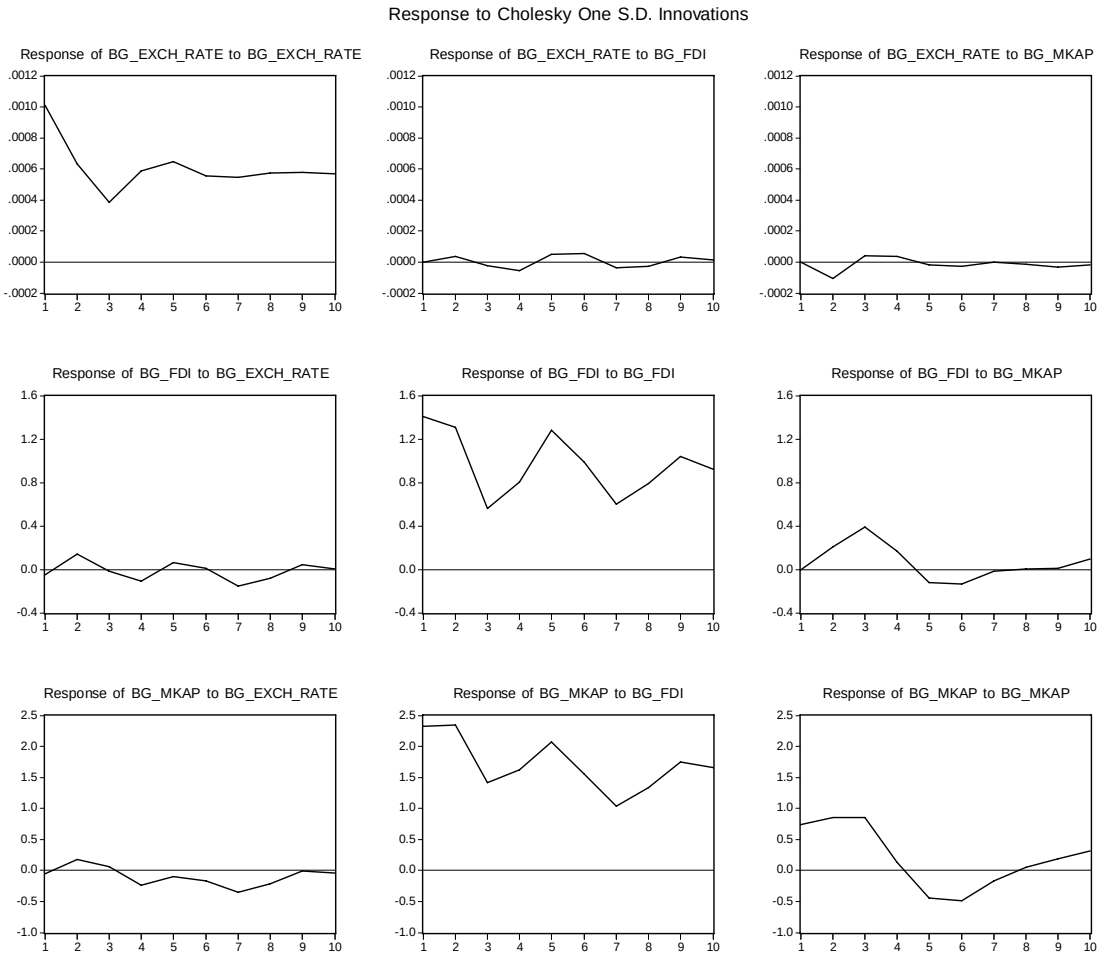
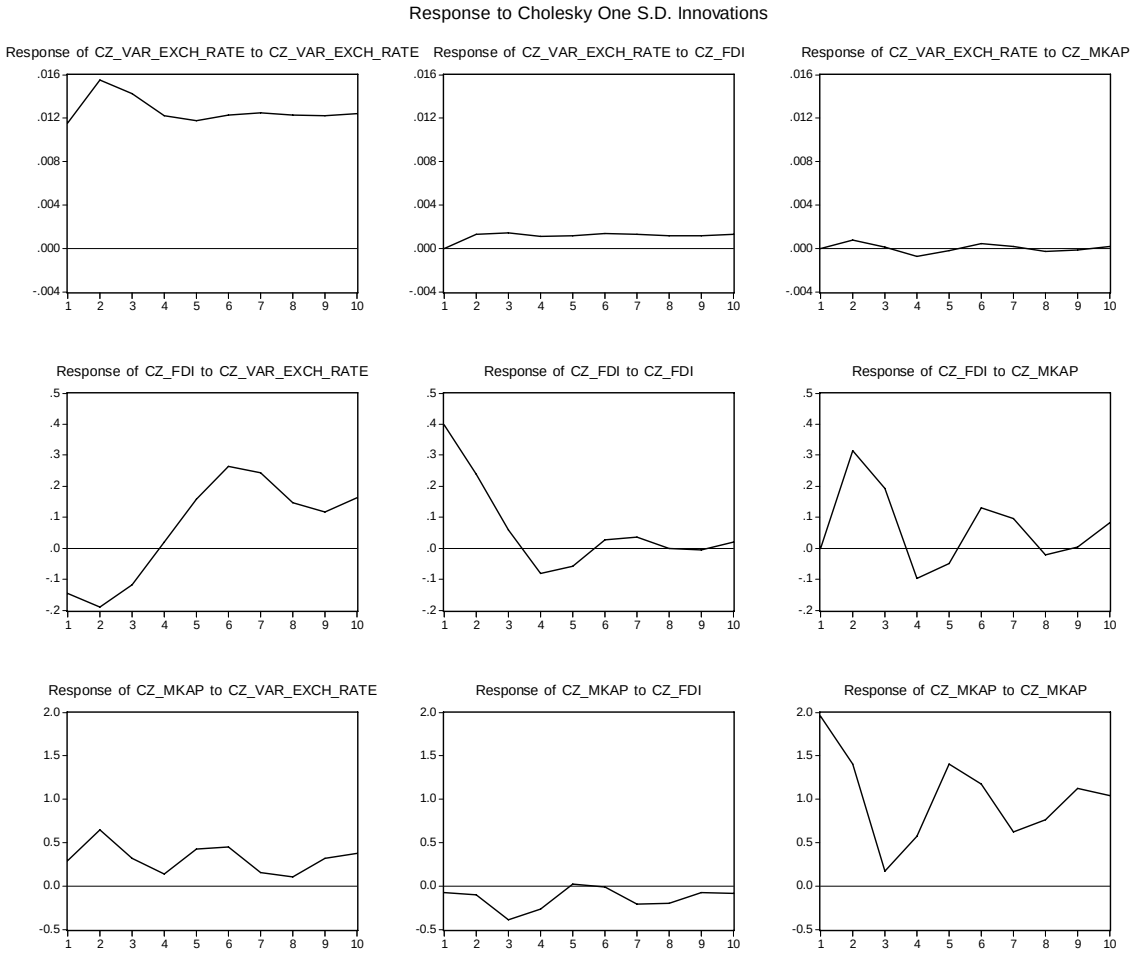
Annex 1

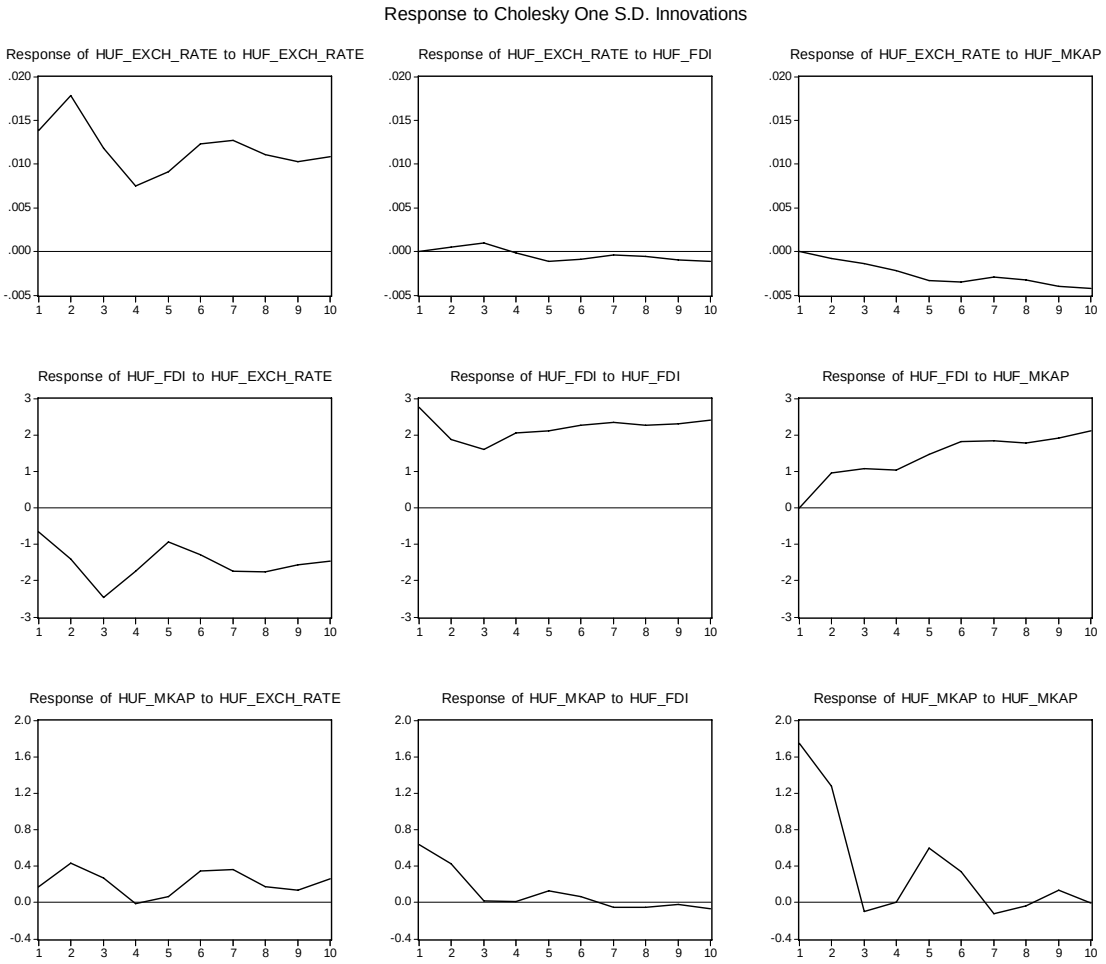
Bulgaria



Czech Republic



Hungary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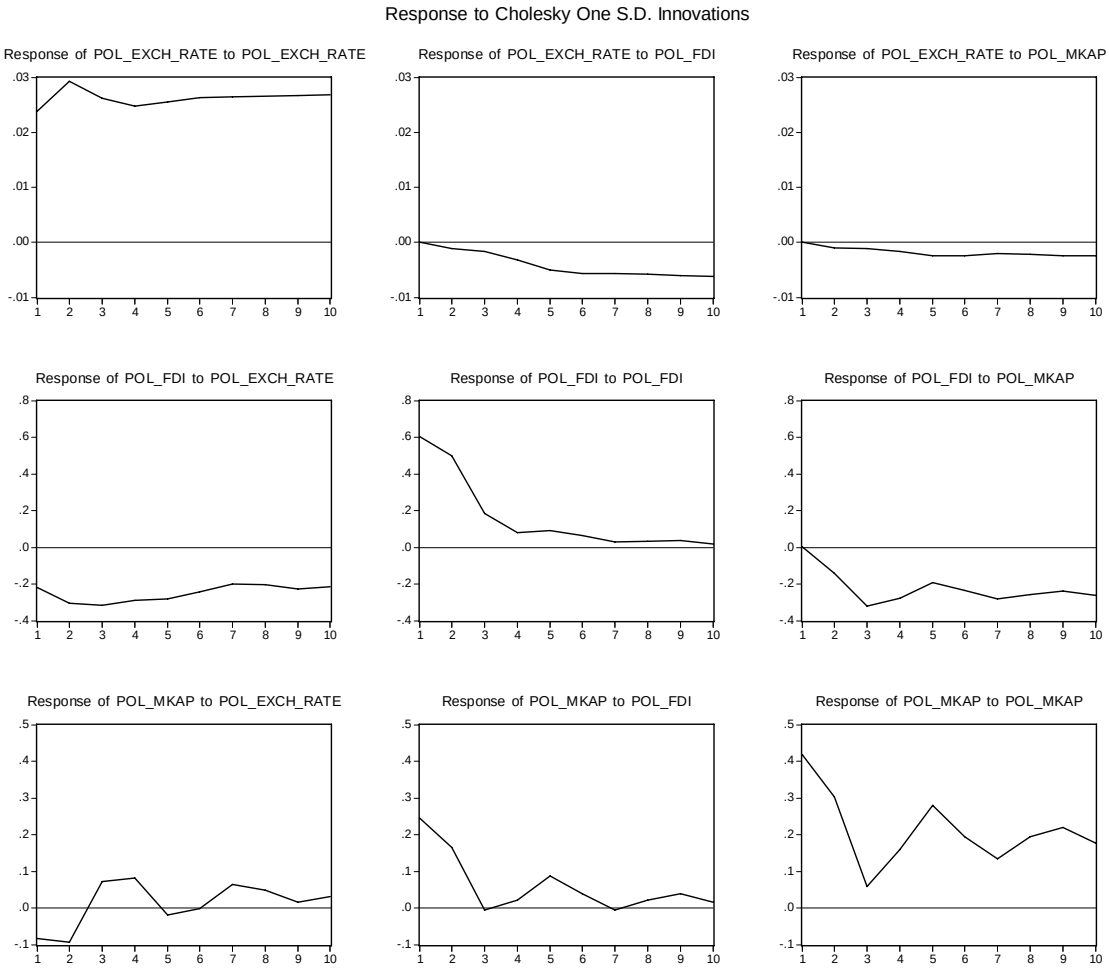
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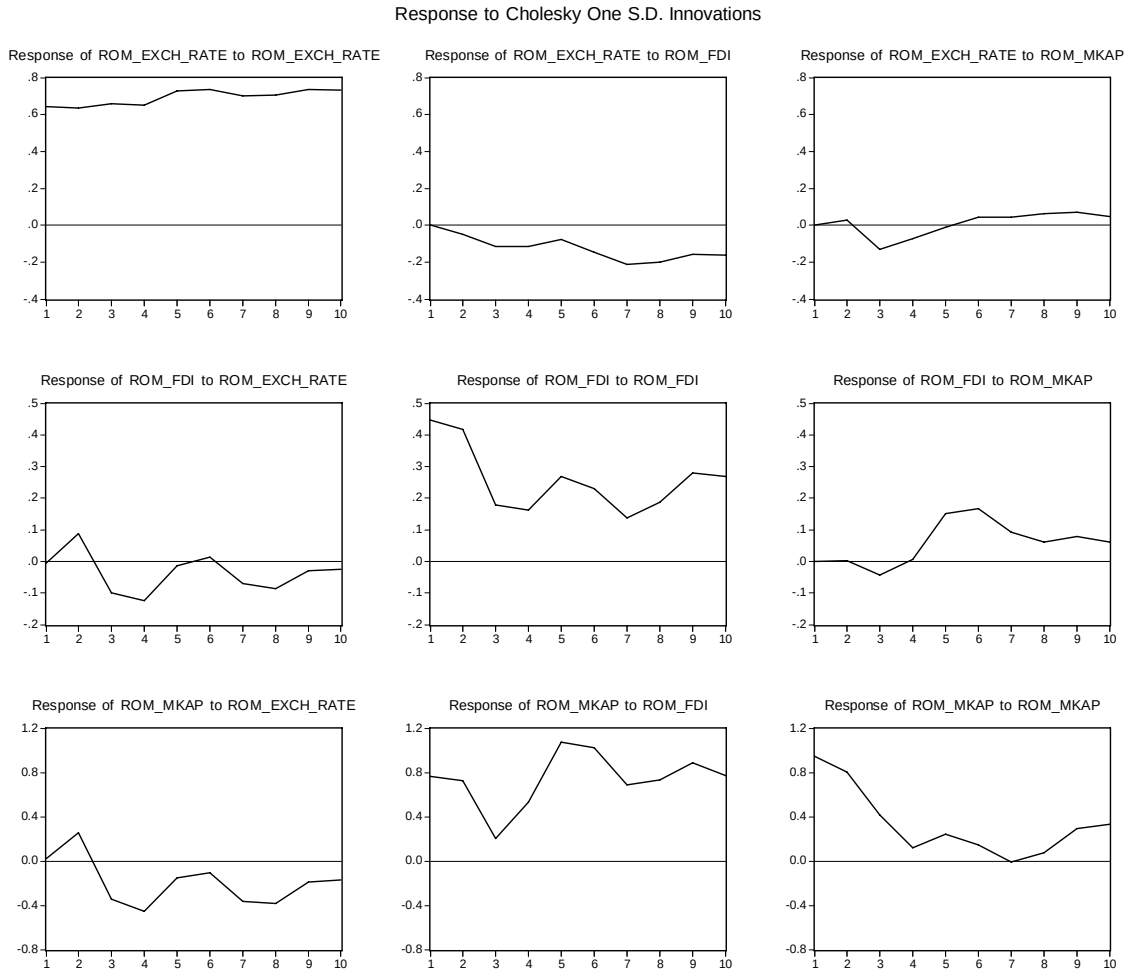
Romania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Response of ROM_MKAP to ROM_EXCH_RATE
Response of ROM_MKAP to ROM_FDI
Response of ROM_MKAP to ROM_MKAP

EXCHANGE RATE – TRIGGER OF FOREIGN DIRECT INVESTMENTS

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Abstract. *This paper encloses a comparative approach on the manner in which foreign direct investments are inter-related with the exchange rate at the level of the CEE countries (Bulgaria, Czech Republic, Hungary, Poland and Romania).*

After performing a qualitative analysis of the manner in which foreign direct investments evolved during a period of ten years in these countries, we run out the Granger causality test to identify the characteristics of this relation.

Keywords: foreign direct investments, exchange rate, casuality.

JEL Codes: C50, F20, G20.

1. Introduction

After the collapse of the fixed rate system in 1971, based on US dollar's role as a gold-standard currencies, established by the Bretton Woods Agreement in 1944, and the proliferation of floating exchange rates, foreign exchange transaction volume has increased exponentially, almost 1,000 times (from ca. $ 5 billion per day in 1977 to 500 billion dollars per day in 1988 and 5 trillion dollars per day in 2009). This was due to both increasing globalization of financial markets in decades, and the explosive growth in leveraged derivative transactions (amounting to an artificial multiplication of 500 times). It is exactly because of this reason that, in 2008, the discrepancy between the global product of 60 trillion dollars and the derivatives market estimated at 1,500 trillion dollars appeared. Thus the foreign exchange market has come to be dominated by speculation and the factors influencing exchange rates have diversified and became increasingly more difficult to quantify.

The exchange rate is actually the most synthetic indicator in the economy; meanwhile, it reflects a general equilibrium in the real economy, on the one hand and in the monetary and financial economy, on the other side. Thus, exchange rates are influenced by a system of factors, highlighting high levels of interdependence and heterogeneous degrees of determination. For these reasons, various approaches highlighting a holographic dimension of the exchange rate (in terms of exporters/importers, investors or speculators) can demonstrate that on certain shorter or longer periods of time, a number of determinants may become dominant.

After the collapse of the fixed exchange rate mechanism set up within the Bretton Woods conference, a debate emerged on the pros and cons of the impact exerted by floating exchange rate on the international trade.

Opponents of flexible regime considered that exchange volatility has a negative effect on trade. In 1973 Wilfred Ethier laid the grounds of a model in which “the behavior of merchants involves simultaneously both commercial covering and speculation linked in an

essential way". There were several critics of forward markets which set forth a series of flaws related to the incapacity of the forward market to act as a convenient hedge instrument for the exchange rate volatility.

The first flaw refers to the fact that forward markets are not deep enough in order to ensure a proper hedge against exchange rate uncertainty.

The second one encloses a complicated relationship between exchange rates and prices whereby "changes in the exchange value of currencies are liable to affect merchants in two different ways – through bringing about a change in the amount payable or receivable in terms of their own currency and through bringing about changes in the prices of the goods exported or imported in terms of their own currency".

From this perspective, this type of model leads to a double role played by traders – both speculators and arbitragers.

On the other hand, several studies underlined that forward market implies an access cost; in this manner, the access is limited. Meanwhile, the effect is known by all market participants, but the intensity of the effect remains remains unknown.

Globally, literature brings forth two stages on the relationship between exchange rate and foreign direct investments: the first stage includes models asserting that a negative effect of foreign exchange uncertainty can be fully offset with financial hedging (Kogut, 1983, Krugman, 1989).

The second stage refers to a series of studies with contradictory results (Cushman, 1985,1988, Goldberg, Kolstad, 1995). Cushman analyzed FDI percentage changes in order to avoid difficulties implied by non-stationarity; moreover, he used real and not nominal exchange rate.

Cushman identified a positive relationship between FDI and exchange rate volatility. He explained this finding that ",in response to risk, the multinational firm reduces exports to the foreign country but offsets this somewhat by increasing foreign capital input and production". Cushman's conclusions where subsequently criticized by more recent authors: "although innovative at the time it was published …his predictions are certainly not compatible with the ones of more recent research" (Jeanneret, 2007). Jeanneret highlighted several critical drawbacks to Cushman's study; the exchange rate volatility was likely overestimated because the author computed standard deviation from levels instead of the log of the exchange rate (Jeanneret, 2007).

A more recent study by Chakrabarti and Scholnik (2002) did not find a negative relation between exchange rate variability and FDI. Using data on FDI flows from the US to 20 OECD countries over 1982-1995 period, and estimating exchange rate uncertainty as the standard deviation of monthly exchange rate devaluations during the preceding year, the authors revealed a statistically insignificant relation with a Fixed or a Random Effects specification.

In 2007, Jeanneret (2007) discovered a non-monotonic, "U-shaped," relationship between exchange rate volatility and FDI, and second, he built a "real-options model of multinationals" that is consistent with his empirical findings.

2. Empirical approach on the causality between exchange rate and foreign direct investments

In the literature, there were several theories highlighting the bidirectional relationship. The classic theories set forth the idea that exchange rate determines the volume of foreign direct investments; a depreciated currency encourages the investors to de-locate their operations in geographic areas where the labor cost is lower.

The modern theories highlight that foreign investments impact exchange rate from the perspective of the financial flows; a consistent volume of financial flows denominated in foreign currencies determines the appreciation of the national currency.

We consider the weight of net inflows (the difference between the volume of financial flows directed by foreign investors towards CEE countries and the financial flows repatriated into their own countries) into GDP as a valuable input for the analysis of the foreign direct investments, allowing a commensuration between gross domestic product and foreign direct investments.

We collected quarter data relative to the foreign direct investments and exchange rate dynamic for the CEE countries from the World Bank database.

At the level of the CEE countries, the weight of foreign direct investments into GDP has followed up a pathway characterized by heterogeneity.

As such, during a period of time of five years (1999-2003), the weight of foreign direct investments in GDP has increased in case of Slovakia (from 1% to 12%) and Bulgaria (from 6% to 10%) while in case of Romania it decreased from 3% to 1%.

In case of Czech, the weight of foreign direct investments has decreased from 10% to 2% while in case it decreased from 7% to 3%.

From 2003-2007, at the level of all the countries, the indicator recorded a continuous increase (from 10% to 33% in case of Bulgaria, from from 2% to 6% in case of Cezch Republic and from, 3% to 52% in case of Hungary).

Once appeared the financial crisis, the weight of foreign direct investments into GDP has lowered. Since CEE countries are perceived as risky by investors, in the context of the risk aversion predominance, the financial flows directed towards the emerging countries have reduced dramatically (from 25% to 10% in Bulgaria, from 7% to -5% for Hungary, from 9% to 4% for Romania).

As for a comparative approach (Table 1), Bulgaria (10%) and Hungary (16%) have managed to attract the highest volume of foreign direct investments, while the lowest values have been attracted by Hungary (-5%) and Poland (0%), under the impact of the financial crisis. It is interesting that Hungary holds both position (in terms of maximum and minimum as well).

An analysis at the level of the exchange rate variation reveals that Hungary (2.47%) and Romania (4.61%) have recorded the highest volatility at the level of the exchange rate during the analyzed period.

The empirical part of the research tests two hypothesis:

1. *The exchange rate has an impact on foreign direct investments*

We assume that in the context of a weak currency which is likely to appreciate in the future based on a potential stabilization/improvement of the macroeconomic framework, the foreign investors will have incentives to direct financial flows to that country since a potential appreciation offers the opportunity to increase the investment value.

2. *The foreign direct investments influence the exchange rate*

Significant financial flows directed by foreign investors and denominated in foreign currency encourage the appreciation of the national currency due to the increase of the volume of foreign currency.

The statistic output corresponding to the Granger test performed at the level of the CEE countries reveals important findings in terms of relation between exchange rate and foreign direct investments.

Table 1

Descriptive Statistics corresponding to the foreign direct investments

	BG_FDI	CZ_FDI	HUF_FDI	POL_FDI	ROM_FDI
Mean	3.43	1.57	3.36	1.18	1.27
Median	2.60	1.44	1.68	1.04	0.96
Maximum	10.23	3.41	16.12	3.72	2.79
Minimum	0.96	0.16	-5.00	0.00	0.32
Std. Dev.	2.34	0.94	4.51	0.94	0.71
Skewness	1.29	0.26	1.36	0.85	0.70
Kurtosis	3.91	1.86	4.29	3.22	2.33
Jarque-Bera	13.77	2.87	16.64	5.34	4.47
Probability	0.00	0.24	0.00	0.07	0.11
Sum	151.00	69.00	148.00	52.00	56.00
Sum Sq. Dev.	235.91	37.98	873.19	38.11	21.44
Observations	44.00	44.00	44.00	44.00	44.00

Table 2

Descriptive statistics corresponding to the exchange rate variability

	BG_EXCH_RATE	CZ_VAR_EXCH_RATE	HUF_EXCH_RATE	POL_EXCH_RATE	ROM_EXCH_RATE
Mean	0.67	1.49	2.41	0.60	2.86
Median	0.67	1.49	2.40	0.60	4.26
Maximum	0.67	1.58	2.47	0.68	4.61
Minimum	0.67	1.38	2.37	0.52	0.51
Std. Dev.	0.00	0.05	0.02	0.04	1.93
Skewness	-0.88	-0.07	1.08	-0.05	-0.36
Kurtosis	2.06	2.08	4.63	2.68	1.14
Jarque-Bera	6.59	1.60	13.36	0.21	7.27
Probability	0.04	0.45	0.00	0.90	0.03
Sum	26.78	65.34	105.93	26.53	125.69
Sum Sq. Dev.	0.00	0.12	0.02	0.06	160.58
Observa-tions	40.00	44.00	44.00	44.00	44.00

Table 3

Statistic output corresponding to the Granger test

Country		F-Statistic	Probability
Bulgaria	EXCH_RATE does not Granger Cause FDI	4.70926	0.01665
	FDI does not Granger Cause EXCH_RATE	2.16345	0.13253
Czech	EXCH_RATE does not Granger Cause FDI	5.91970	0.00588
	FDI does not Granger Cause EXCH_RATE	0.00335	0.99665
Hungary	EXCH_RATE does not Granger Cause FDI	3.74194	0.03311
	FDI does not Granger Cause EXCH_RATE	0.42140	0.65924
Poland	EXCH_RATE does not Granger Cause FDI	0.10960	0.89648
	FDI does not Granger Cause EXCH_RATE	0.17827	0.83743
Romania	EXCH_RATE does not Granger Cause FDI	0.68088	0.51240
	FDI does not Granger Cause EXCH_RATE	2.02768	0.14601

The probability corresponding to the null hypothesis permits the acceptance of an impact exerted by foreign direct investments on exchange rate; on the contrary, the exchange rate does not appear in the position to impact foreign direct investments.

Thus, the foreign direct investments impact exchange rate in case of Bulgaria, Czech and Hungary.

In the other cases (Romania and Poland), the relationship has not been validated; as such, exchange rate and foreign direct investments are not inter-related.

Research permitted to draw an important conclusion regarding the role played by foreign investments on the dynamic of the exchange rate at the level of the CEE countries.

Although the transition process followed up by these countries implied periods of significant depreciation of their national currencies, this did not represent the main driver for the delocalization of foreign investments; on the contrary, the exchange rate appeared to be strongly affected by the volume of financial flows.

Two countries (Bulgaria and Hungary) in case of which the relationship that confirmed an impact deriving from the foreign direct investments to the exchange rate is valid are precisely those that managed to attract the highest level of foreign direct investments.

This finding is in line with the last researches performed at the level of the CEE macroeconomic environment. Several studies (Yartey, 2007) pointed out that the economic growth recorded by CEE countries during 2004-2007 occurred mainly in the context of the positive effects of foreign direct investments which gave the opportunity of job creation, enlargement of the services and products area as well as national currency appreciation.

Authors underlined that the appreciation of the national currencies was partly artificial, meaning that it was not based on economic fundamentals, but on important foreign financial flows that caused the increase of the foreign currency volume (Triandafil, Brezeanu, 2009).

In line with this idea, we can appreciate that foreign investors were mainly determined by the advantages in terms of low labor cost, high qualification level or permissive fiscal system offered by the CEE countries (Kiyota, Urata, 2004).

The findings of our study bring forth a strong dependence not only of CEE currencies, but also of CEE macroeconomic framework on external financial flows.

In fact, there are some effects on chain propagation that can be highlighted: in CEE, the stability of macroeconomic environment is highly dependent on exchange rate volatility which, in turn, is dependent on the volume of financial flows.

This aspect determined real disequilibria after the ignition of financial crisis.

The retrieval of financial flows occurred in the context of a strong risk aversion which suddenly led to the depreciation of the national currencies.

Conclusions

This paper encloses a comparative approach on the manner in which foreign direct investments are inter-related with the exchange rate at the level of the CEE countries (Bulgaria, Czech Republic, Hungary, Poland and Romania).

After performing a qualitative analysis of the manner in which foreign direct investments evolved during a period of ten years in these countries, we ran out the Granger causality test to identify the characteristics of this relation.

The statistic output corresponding to the Granger test performed at the level of the CEE countries reveals important findings in terms of relation between exchange rate and foreign direct investments.

The probability corresponding to the null hypothesis permits the acceptance of an impact exerted by foreign direct investments on exchange rate; on the contrary, the exchange rate does not appear in the position to impact foreign direct investments.

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Acknowledgements

This paper is supported by the CNCSIS – TE research grant, code 349, no.36/2010 development of statistical and econometrical tools for the analysis of the location process of the foreign direct investments at the regional level in Romania.

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TIME DURATION DECAY IN ROMANIAN CAPITAL MARKETS

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Abstract. *Classic studies of the probability density of price fluctuations g for stocks and foreign exchanges of several highly developed economies have been interpreted using a power-law probability density function $P(g) \sim g^{-(\alpha+1)}$ with exponent values $\alpha > 2$, which are outside the L´evy-stable regime $0 < \alpha < 2$. To test the universality of this relationship in "time duration", we isolate the time duration between rate of change for the period Jan 2000 - Oct 2010 for the 23 largest stocks of the Bucharest Stock Exchange which has the highest volume of trade in Romania. We find that D(g) decays as an exponential function $D(g) \sim \exp(-\beta g)$ with a characteristic decay scales $\beta = 2.45 \pm 0.045$. Thus we conclude that time duration in Romanian stock market may belong to a universality class that is witnessed in equity prices around the world.*

Keywords: stock market; exponentiality; decay; time.

JEL Code: G10.
REL Code: 11B.

Introduction

Demand-supply factors, fundamentals, news, sentiment and a host of other factors constitute the complex market mechanism that causes the price variation in a component stock. Tracking this multitude of variables is tricky and hence makes the quantification of economic fluctuations challenging.

Starting 1969 Economic Nobel laureates research has focused a lot on understanding market fluctuations, with specific attention to business cycles, fluctuations, economic history and mathematical proportion. The work has focused on creating ideas for aggregation, simplification, order, understanding efficiency rules like in Pareto curve, cyclicality in economic variables, interdependence and interconnectedness of economics with every other social aspect. There has been a concerted effort made to model these many variables including price of an asset.

A textbook study of stock price variations suggests that stock prices and, concomitantly, stock price indices follow a Markovian-Wiener process. This means that the stock price on any day is independent of the history of the stock price or its fluctuation. This results in a conventional log-normal density for stock prices, i.e., the logarithm of the stock price follows a normal density. However, developed markets such as those in the United States, Germany, and Japan exhibit a stock price behavior that differs from the Gaussian density frequently used in conventional theories. A key empirical finding in this regard is that the probability density of logarithmic price changes (returns) is approximately symmetric and decays with power law tails with identical exponent $\acute{\alpha} \approx 3$ for both tails. One intriguing aspect of this empirical finding is that it appears to be universal. Individual stocks appear to conform to these laws not just in US markets, but also in German and Australian markets. These same laws are obeyed by market indices such as the S&P 500, the Dow Jones, the NIKKEI, the

Hang Seng, and the Milan index, and similar behavior is found in commodity markets as well as in the most-traded currency exchange rates. The universal nature of these patterns exhibited in the statistics of daily returns is remarkable, since these markets differ greatly in their details. The observed universality is consistent with a scale-independent behavior of the underlying dynamics.

Exponentiality and time duration

This paper builds on the exponentiality (power law) of price and identifies isolates and tests the time duration intrinsic in the price data series. The stock coverage includes the daily prices of top 23 traded stocks in the Bucharest stock exchange from January 2000 till October 2010. We have covered SIF Banat Crisana, SIF Moldova, SIF Transilvania, SIF Muntenia, SIF Oltenia, Alro, Antibiotice, Azomures, Banca Transilvania, Banca Carpatica, Biofarm, BRD Group Societe General, SSIF Broker, Condmag, Compa Sibiu, Dafora, Oltchim, Rompetrol Well Services, Petrom, Transgas, Teraplast, Transelectrica,Turbomecanica.

We take the daily data of the stock and tabulate the rate of change for that price. Rate of change is a ratio of price of day 14 divided by price of day 1. The indicator detrends the price, isolates time and illustrates time seasonality as a stochastic process.

$$R_1=\frac{P_n}{P_{n-13}}$$

Here R_1 is the rate of change of stock 1 and P_n is the price of stock on day n and P_{n-13} price on day n-13. The rate of change of SIF Oltenia is illustrated below. The data series moves around a mean value of 1.

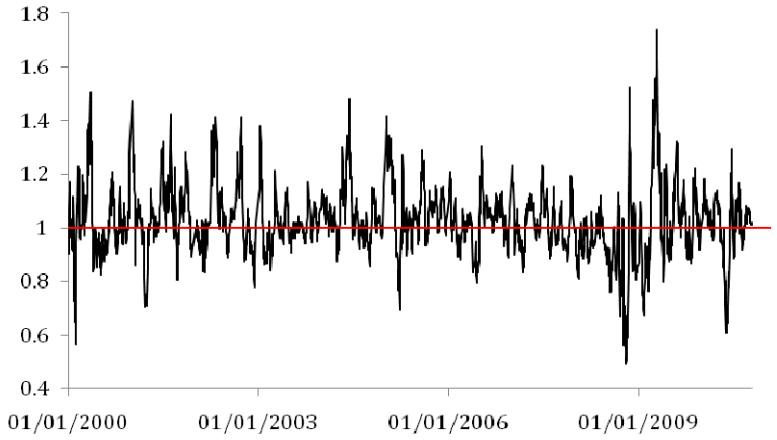

Figure 1. *Rate of change for SIF Oltenia*

Everytime the rate of change touches the mean value at 1, we register the calendar date and then from these calendar days ‘c’ calculate the duration ‘d’ between two test points.

Table 1

Registration of calendar days for SIF Oltenia

calendar day c1	07 January 2000	R tests mean value 1
calendar day c2	17 January 2000	R tests mean value 1
calendar day c3	28 January 2000	R tests mean value 1
calendar day c4	01 February 2000	R tests mean value 1
calendar day c5	21 February 2000	R tests mean value 1
calendar day c6	06 March 2000	R tests mean value 1
calendar day c7	15 March 2000	R tests mean value 1

Table 2

Duration between test points in SIF Oltenia

duration in days d1	c2-c1	10
duration in days d2	c3-c2	11
duration in days d3	c4-c3	4
duration in days d4	c5-c4	20
duration in days d5	c6-c5	14
duration in days d6	c7-c6	9

When we sort this duration as a simple ascending sequence and observe the following curves for the stocks.

Figure 2 illustrates the durations for SIF3 (SIF Transylvania), SIF2 (Sif Moldova) and SIF1 (SIF Banat Crisana). We have illustrated the rest of the distributions in the Annex.

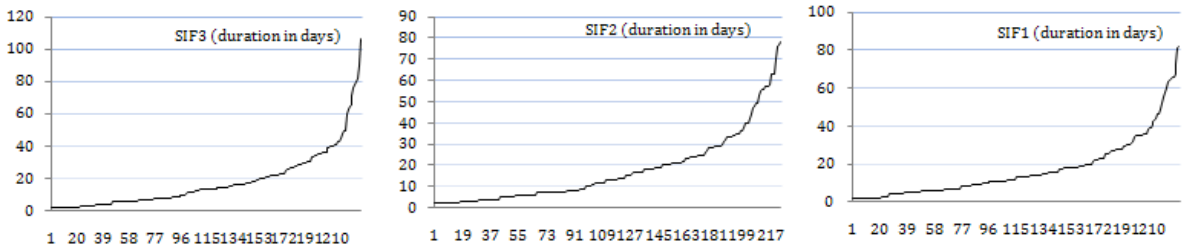

Figure 2. *Duration in days for SIF1, SIF2, SIF3*

Analysis

When we look at time duration for the 23 stocks we find most distributions to have an exponential nature. Our results are based on analyzing ≈ 5,000 time duration data points representing rate of change inflexion around a mean value of 1 over the daily data ≈ 50,000 price data points for the period January 2000—October 2010.

Figure 2 displays the ascending sequence of the time duration data. We observe that the distribution has an exponential form and decay.

$P(g) \sim e^{-\beta g}$

With $\beta = 2.4 \pm 0.037$

Further we calculate the average β for all 23 Romanian stocks.

$B \times avg = 1/23 \sum_{i=1}^{23} \beta i$

and find $\beta \times avg = 2.4 \pm 0.045$)

Discussion

Finding exponential decay in time durations obtained from a stochastic process is a shocking revelation that challenges the idea of exponentiality and power law witnessed in prices and in nature. A natural question is how come time durations have a similar statistical property like nature and prices. One possible reason can be that time durations were ordered in the first place, but we assumed them to be patternless and linear. Exponential decay in time

duration data has large implications for markets and scientific research. Not only it suggests that time is proportional and fractalled like nature, but it also opens up new areas of time based analytics, suggesting that business cycles and market seasonality is quantifiable.

Acknowledgments

We thank Domnita Pascut, Anna Maria Michesan for their encouragement and support.

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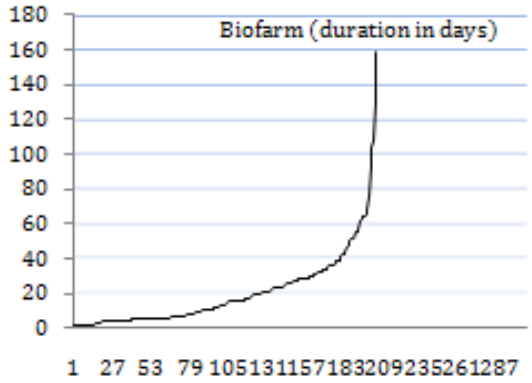
Annex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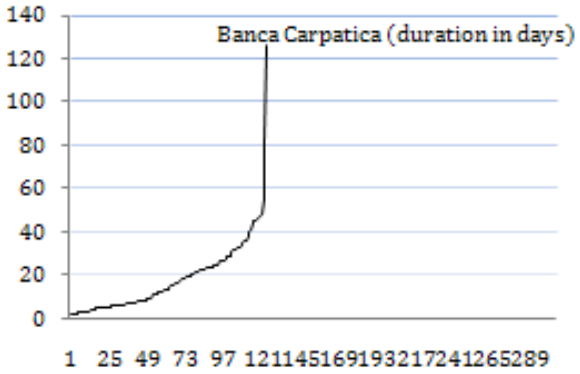
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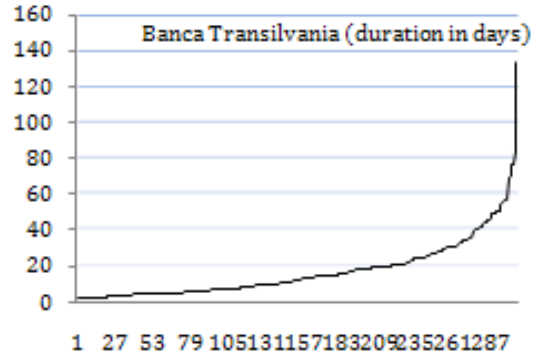
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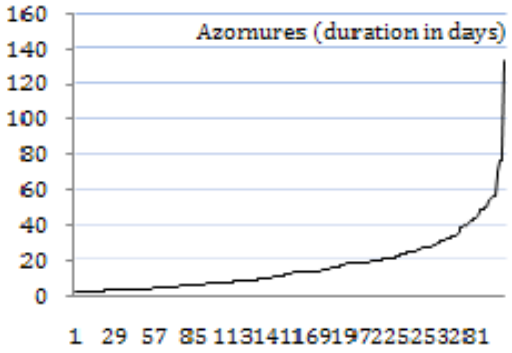
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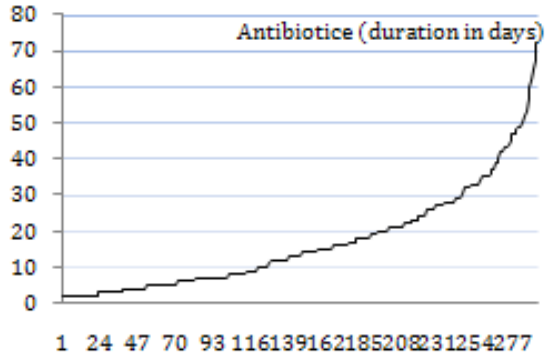
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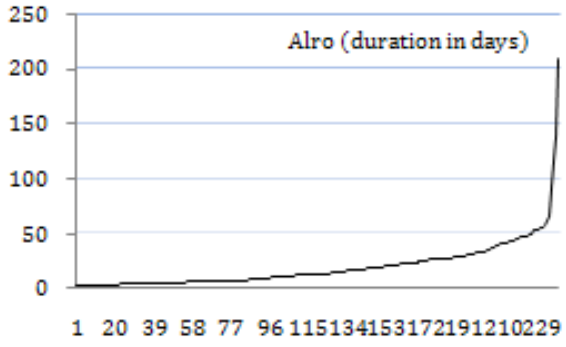
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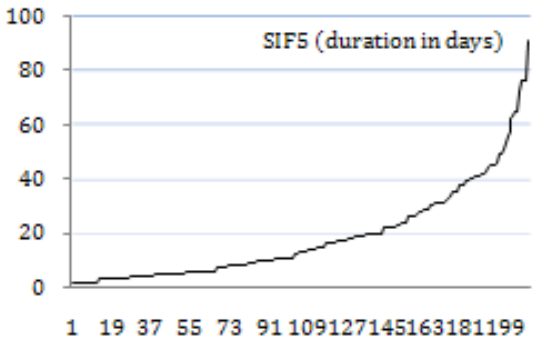
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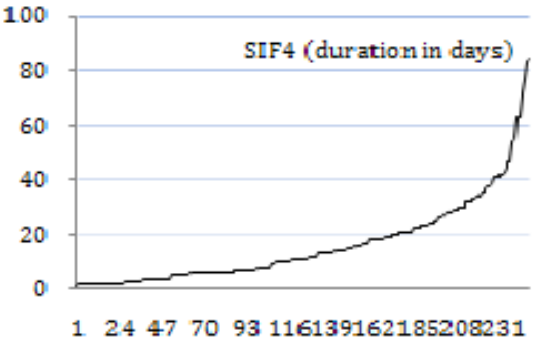
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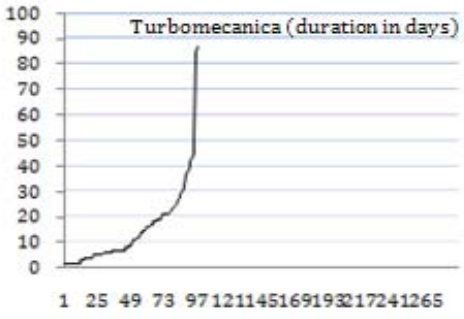
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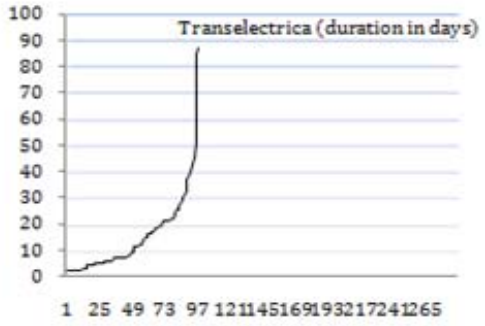
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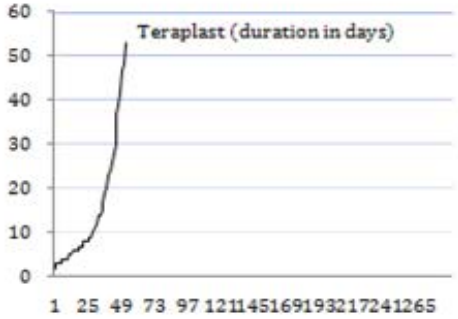
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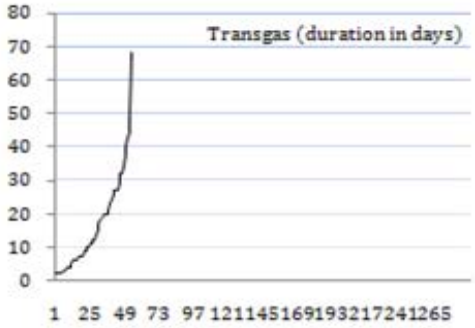
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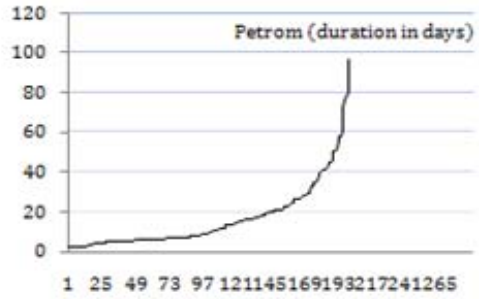
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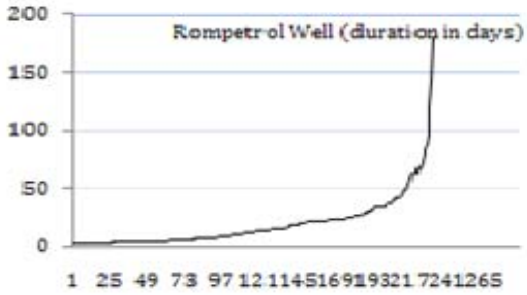
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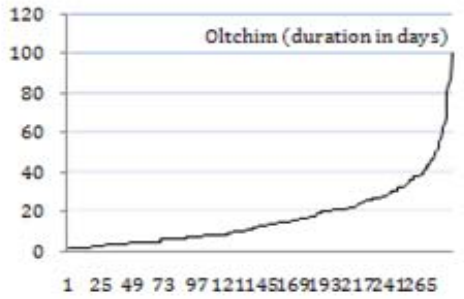
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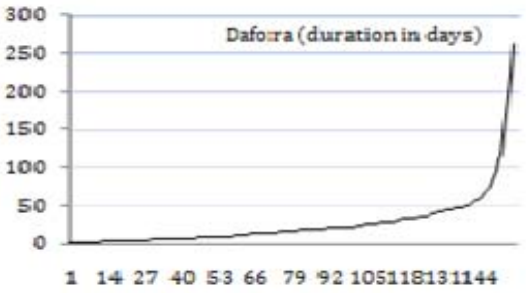
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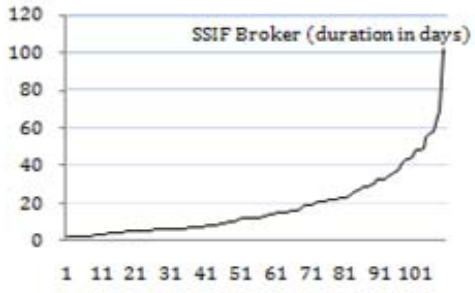
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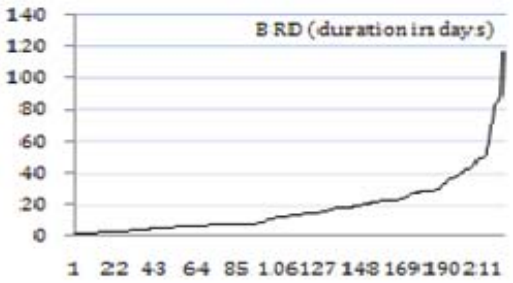
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PREDICTABILITY OF STOCK MARKET CRASHES: A STATISTICAL APPROACH

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Abstract. *The last decades of the last century were marked by a prodigious development of capital markets phenomena modeling. Mathematical modeling, which proved its utility in the study of natural science, was adapted to the economic sphere in order to increase the degree of accuracy of the results and, particularly, predictions. The recent economic and financial crises once again show that the predictions provided by mathematical models were successful especially regarding the past and less regarding future evolutions. This study presents a statistical approach of the predictability of stock market crashes, with applications on the Romanian capital market.*

Keywords: efficient market hypothesis; fractal market hypothesis; stable distribution; predictability; stock market crash.

JEL Code: G01.

1. Introduction

Even if lately the attention is focused on the great depression of the `30s as well as on the present economic-financial crisis, the history of capital market shows us that the frequency of such collapse situations is not to be neglected.

Sornette (2003) describes two of the most important events of the sort, which marked the respective economic context: Tulip Mania (17^{th} century, Nederland) and South Sea Bubble (18^{th} century, The Great Britain).

The 20^{th} century had plenty of such catastrophic events, from the Great Depression in the `30s, to the Black Monday in 1987, the dot.com phenomenon in the `90s in the US, to the capital markets crash in 2007 and 2008.

In order to understand the phenomenon of stock market crashes' appearance and evolution, we must first ask some fundamental questions; the entire scientific process of building a crash predicting model depends on the response to these questions.

Synthetically, these questions can be states in the following manner (Sornette, 2003): What is a stock market crash? What is the mechanism of appearance and evolution of stock market crashes? What is the cause of stock market crashes? Can the moment of appearance, as well as their magnitude be predicted?

The answers to these questions can result after examining the theoretical models of stock market crashes, as well as after applying quantitative instruments on the capital market prices and returns data series, as well as after testing some fundamental hypotheses related to the predictable behavior of these data series.

In the followings, we shall review the main aspects related to the predictability of stock market crashes, from the quantitative modeling point of view. From a statistical perspective, in order to draw a conclusion regarding the predictability of stock market crashes a few necessary stages must be reached: estimating the probability distribution of returns, testing the efficient market hypothesis as well as the fractal market hypothesis, formulating a theoretical model of transaction price evolution prior to a crash, estimating the time interval before speculative bubbles crash.

2. The probability distribution of returns

Knowing the probability distribution of the returns on stocks or titles is essential to any statistical inference. Generally, it is considered that the evolution of returns is characterized by a normal distribution (Gaussian) or by its derivatives (e.g. log-normal distribution), although there are numerous empirical arguments that contradict this hypothesis (Mandelbrot, 1963), Wesley, Mitchell, 1960).

More recent papers (Rachev, 2003) take the theory of stable distributions in financial modeling and show that they are a much better approach than classical distributions. The fact that the observed distribution is heavy-tailed can only be explained by a normal distribution. Moreover, the frequency of appearance of extreme phenomena, such as financial crises is in fact, higher than the normal distribution would preview.

The family of stable distributions is a wide class of distributions, which have the property of being invariable to linear combinations, the Gaussian distribution being a particular case of stable distributions.

The difficulty which appears in the case of stable distributions is that in most cases there is not known an explicit form of the probability density function, but only the expression of the characteristic function.

Thus, a random variable X follow a stable distribution of parameters $(\alpha,\beta,\gamma,\delta)$ (Nolan, 2003), if there is $\gamma>0,\delta\in\Re$ such that X and $\gamma\times Z+\delta$ have the same distribution, where Z is a random variable with the following characteristic function:

$$\phi(t)=E[e^{itZ}]=\begin{cases}\exp(-|t|^{\alpha}[1-i\times\beta\times\tan(\frac{\pi\alpha}{2})\times\text{sign}(t)]),\alpha\neq1\\ \exp(-|t|[1+i\times\beta\times t\frac{2}{\pi}\text{sign}(t)(\ln(|t|)]),\alpha=1\end{cases}.$$

In the notation above, $\alpha\in(0.2]$ is the stability index, which controls the thickness of the tails (for normal distribution, $\alpha=2$), $\beta\in[-1,1]$ is the parameter which controls symmetry, $\gamma\in(0,\infty)$ is the scale parameter and $\delta\in R$ is the location parameter.

Unlike the normal distribution, stable distributions have a higher probability of extreme cases appearance.

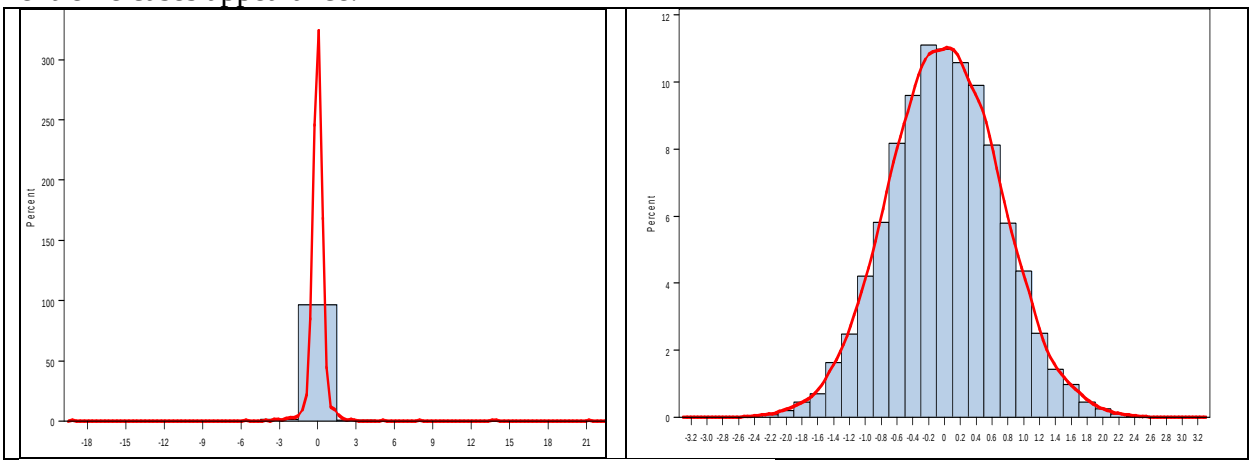

Figure 1. *Stable distribution* $S(\alpha=1.5,\beta=0,\gamma=1,\delta=0;0)$;

Figure 2. *Normal distribution* $N(\mu=0,\sigma^2=1/2)$

3. Efficient market hypothesis

The concept of efficient markets, as is understood in modern literature, originates in Bachelier, Cowles and Samuelson's papers. In 1970, in his famous study, Fama states the following definition: "a market in which prices always completely reflect the available information is called an efficient market".

A more recent definition is the one stated by Malkiel (1992): "A capital market is called efficient if it correctly and completely reflects all information relevant to determining the prices of assets. Formally, the market is supposed to be efficient relative to a certain set of information, if the prices of assets were not affected by collecting that information from all agents in the capital market. Moreover, efficiency relative to a set of information implies the fact that it is impossible to gain profit based on that set of information".

From the modeling point of view, the most appropriate form of efficient market hypothesis is weak efficiency – the set of information only contains the transactions history (information regarding prices or financial asset returns).

One way of testing the capital market efficiency is to study the behavior of financial assets profitability; if they are unpredictable, it is a clue that the market is efficient.

Statistically, the hypothesis of weak market efficiency is equivalent to the random walk hypothesis.

The most natural expression of the random walk expression is the one in which the prices of the financial assets is a stochastic process with internal dependence of the following form: $p_t = \mu + p_{t-1} + \varepsilon_t$, where $(\varepsilon_t)_t \sim \mathbf{WN}(0,\sigma^2)$ (i.e. white noise) and $\varepsilon_t \sim \mathbf{N}(0,\sigma^2)$, where $p_t = \log P_t$. An immediate consequence of the efficient market hypothesis is that price modifications (i.e. returns) are not predictable.

One of the most frequently used statistical tests in verifying the random walk hypothesis is *Variance Ratio Test* (Lo, Campbell, MacKiley, 1997). An important property of all random walk hypotheses is that the variance of the residual variable must be a time linear function.

Thus, if the price series has a random walk model:

$$VR(q) = \frac{\mathbf{Var}[r_t + r_{t-1} + ... + r_{t-q+1}]}{q\mathbf{Var}[r_t]} = 1 + 2\sum_{k=1}^{q-1}\left(1 - \frac{k}{q}\right)\rho(k).$$

In fact, the asymptotic distribution of this statistic is used to derive the expression of the statistical test.

4. Fractal market hypothesis

This theory was first conceived by Peters (1989) as a response to the theory of efficient markets. This theory no longer focuses on market efficiency but on its stability.

The fractal market hypothesis is structured on four essential elements which describe the capital market:

- The market is stable and liquid enough when investors have different time horizons;
- Investors maintain the time horizon of the investments independently of informational changes;
- Available information are not automatically reflected by prices;
- The evolution of transaction prices are reflected in the evolution of anticipated earnings.

Mathematically, the fractal market hypothesis is translated through the fact that the price of one asset $p_t = \ln P_t$ is a fractional Brownian motion with the following properties:

- $(p_t)_t$ is a Gaussian process with null average: $E(p_t) = 0, \forall t$ (this can be practically accomplished by transforming $p_t^* = p_t - \mu_t$, where μ_t is the average of the process).
- The covariance function for the process is $E(p_t p_s) = \frac{1}{2}(t^{2H} + s^{2H} - |t-s|^{2H})$, $\forall t, s$.

In the expression of the covariance function, H is the Hurst coefficient, $H \in (0,1)$, which defined the behavior of the returns series. Thus, if $H = 0.5$, prices follow a random walk process, and returns are not correlated; if $H > 0.5$ then the series of returns presents

positive autocorrelation (persistent series), and if $H < 0.5$ then the series presents negative autocorrelation (anti-persistent series).

The fractional Brownian motion has the property of auto-similarity of a fractal, because in distribution terms, we have: $p_{at} \sim |a|^{2H} p_t$.

The connection between the random walk model and the fractal model is the following:

- If H=0.5, then $p_t = \mu + p_{t-1} + \varepsilon_t$, where $(\varepsilon_t)_t$ is white noise, meaning that returns are uncorrelated and unpredictable;
- If H>5, then $p_t = \mu + p_{t-1} + \varepsilon_t$, where $(\varepsilon_t)_t$ is black noise, meaning that the volatility of return changes the sense of evolution more often than in the case of a purely random process;
- If H < 0.5, then $p_t = \mu + p_{t-1} + \varepsilon_t$, where $(\varepsilon_t)_t$ is pink noise, meaning that the return series presents a long memory, hence the perspective of a catastrophic behaviour (the Noah effect).

5. Theoretical models of stock market crashes

Building a theoretical model for stock market crashes is proven to be extremely difficult, especially due to the lack of agreement among economists regarding defining stock market crashes, their origins and evolution.

Generally (Friedman, Abraham, 2007), the starting point is the existence of a fundamental value for a financial asset (intrinsic value), V_t, which is obviously unnoticed, and a directly observable transaction price P_t. The speculative bubble can be defined in this context as an abnormal deviation of the transaction price from the intrinsic value ($B_t = P_t - V_t >> 0$) and, consequently, the stock market crash can be seen as the event consisting of the sudden evolution of $B_t = P_t - V_t$, from a large, positive value, to zero, or even a negative value.

5.1. Keynes-Minsky-Kindleberger model

The Keynes-Minsky-Kindleberger model combines the Keynesian theory with Minsky's ulterior developments (1975, 1982) and Kindleberger's mathematical formalism (2000).

Friedman and Abraham (2007) synthetically present the characteristics of this model; thus, the evolution of a speculative bubble which end with a stock market crash can be systematized in a four-stage model:

- Stage 1 is described by the appearance of an extraordinary opportunity, which can lead to abnormal earnings. In this stage, the market is characterized by a mix of optimism and pessimism, without a clear differentiation of a tendency.
- Stage 2 is started when the optimistic perspective gains proportion, this usually being noticed when the value of the shares increase beyond initial expectations. In this phase, the speculative bubble supports itself, the shares value having an increasing trend based on the optimistic perspective of the market, and the anticipations of abnormal earnings.
- Stage 3 represents the breaking moment for the speculative bubbles, when the optimistic expectations of investors can no longer be sustained by the reality. It is the moment when the stock value crashes, along with the amplification of the panic among investors.
- Stage 4 represents the rebound period, starting from the point when the stock value is so small that no more decrease perspectives are forecasted. Basically, once this stage is reached, the entire cycle is restarted and new premises of stock value increases can be estimated.

The typology of such speculative bubbles depends on the economic context where they take place, and the nature of the (financial or real) opportunities it launches. Although in the case of each speculative bubble such a four-stage process can be observed, each specific situation has particularities that differentiate these phenomena.

5.2. The Sornette – Johansen model

Sornette and Johansen (1998) have analyzed the issue of stock market crashes at macroeconomic and microeconomic levels, accomplishing an extension of the RE model. From a macroeconomic point of view, the model assumes that we are dealing with rational markets which have incomplete information. In such a market, the trade price not only reflects the fundamental value, but also the future expectations related to profitability and risk.

From a microeconomic point of view, the Sornette – Johansen model assumes that investors are connected locally through certain networks that govern their anticipations regarding market earnings. Also, along with this imitative behavior manifested on a horizontal level, each investor receives information at a vertical level, from other public or private sources.

The revolutionary conception promoted by Sornette is that, unlike classical theories, according to which crashes appear as consequences of market chaotic behavior, he identifies as the origin of speculative bubbles ending in crashes, an imitative behavior (mob behavior) due to the fact that local investor networks act convergent.

Thus, the origin of stock market crashes is not a chaotic behavior, but a self-nurtured neat one.

Starting from the Ising model in particle physics, Sornette compares seismic activity to speculative bubbles evolution, and deduces the evolution law for transaction prices before and during the crash, which is seen as a critical moment.

Thus, before the crash, the price can be expressed as

$p_t \approx p_c - \frac{k}{\beta}\left\{B_0(t_c - t)^{\beta} + B_1(t_c - t)\cos\left[\omega \ln(t_c - t) + \phi\right]\right\}$, where p_t is the logarithm of the price at moment t, p_c is the logarithm of the price in the critical moment t_c (the most probable moment of the crash), and $\beta, B_0, B_1, \omega, \phi$ are the parameters of the model which give its log-periodic feature.

Moreover, one cane stimate the probability of sudden appearance of the crash, if it still hasn't appeared (the hazard rate):

$h(t) \approx A + B(t_c - t)^{\beta} + C(t_c - t)\cos\left[\omega \ln(t_c - t) + \phi\right]$

Johansen, Ledoit. Sornette (2000) have applied these models to successfully predict famnous crashed like the one in October 1987, and for the Brazilian market, Cajueiro, Tabak and Werneck (2009) have applied these models to predict the catastrophic behavior of the price series of 21 stocks.

6. Data and methodology

In order to verify the above hypotheses, we used daily data of the BET index (from the Bucharest Stock Market) for the period September 19, 1997 – June 15, 2010 (3164 daily observations).

We used logarithmic returns, defined as $r_t = \ln P_t - \ln P_{t-1}$, where P_t represents the value of the index at moment t.

7. Results

In order to verify the normal distribution hypothesis for the daily returns of BET, we applied the tests for normal distribution available in SAS 9.2: the Kolmogorov-Smirnov test, the Anderson-Darling test, and the Cramer-von Mises test.

In all three cases, the normal distribution hypothesis was rejected with a probability of at least 99%.

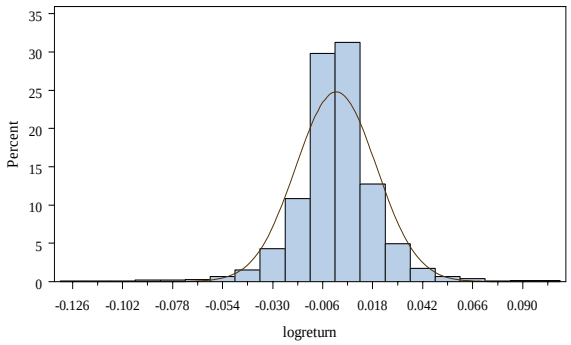

Figure 3. *The histogram of BET returns*

Table 1

Normal distribution parameters

Parameter	Estimate
Mean	0.000506
Std Dev	0.019321

Table 2

Concordance tests for normal distribution

Test	Statistic		p Value	
Kolmogorov-Smirnov	D	0.085	Pr > D	<0.010
Cramer-von Mises	W-Sq	8.062	Pr > W-Sq	<0.005
Anderson-Darling	A-Sq	45.963	Pr > A-Sq	<0.005

Table 3

The distribution of the extreme values of returns

	$\Pr(r_t < c)$	
c	The real series of returns	The estimated normal distribution
-0.05	0.013906	0.0044738
-0.1	0.001264	9.863E-08
-0.11	0.000948	5.343E-09
-0.13	0.000316	7.161E-12

As noticed, the return distribution presents much thicker tails than expected according to normal distribution, while the stable distributions solve the issue of such extreme events. For the series of daily BET returns, we estimated the parameters of a stable distribution using the program STABLE.EXE (the STABLE program is available on J.P. Nolan's website: *academic2.american.edu/~jpnolan*).

Table 4

Stable distribution parameters

Parameter	Estimate	Lower 95%	Upper 95%
α	1.476234	1.421034	1.531434
β	-0.01872	-0.138416	0.100984
γ	0.009246	0.0088915	0.0096011
δ	0.000551	-0.00005	0.0011552

The maximum verosimility estimators show that we can reject the normal distribution hypothesis since the characteristic parameter α os significantly smaller than 2, a typical value of the normal distribution.

In order to test the efficient market hypothesis in its weak form, we used the Variance Ratio Test for the random walk model in the two variants (homoscedasticity and heteroscedasticity of the residuals).

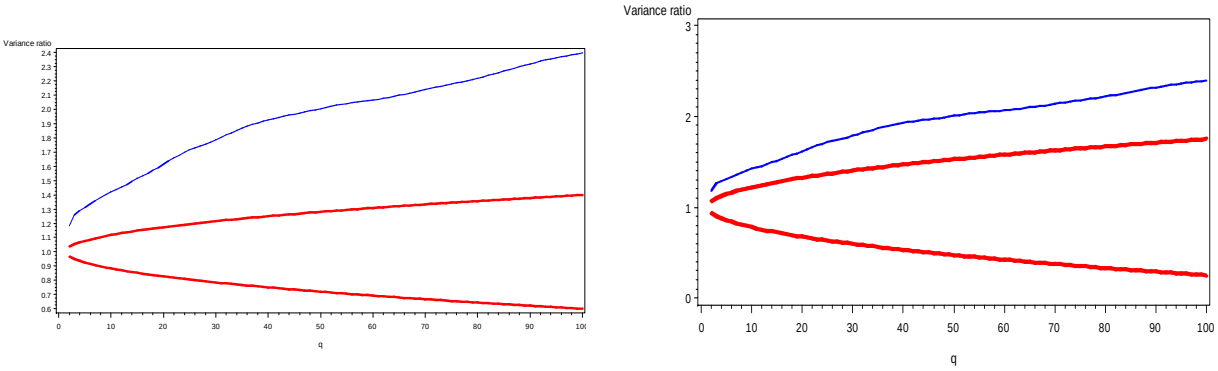

Figure 4. *Confidence intervals for VR(q) in the homoscedasticity and heteroscedasticity hypotheses respectively*

In the graphs above, the red lines are the limits of the confidence interval (95%) for VR(q)in the random walk hypothesis, while the blue lines represent the estimated value of VR(q). Based on this test, we can reject the random walk hypothesis for the daily series of the BET index in the analyzed period.

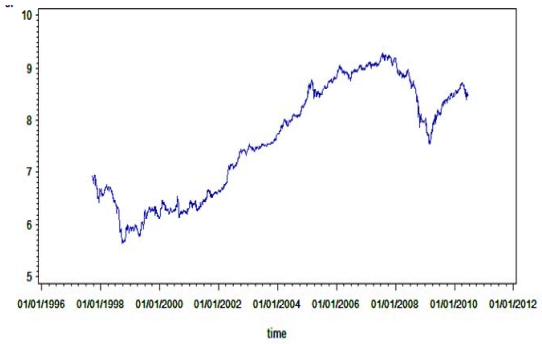

Figure 5. *BET index logarithm series*

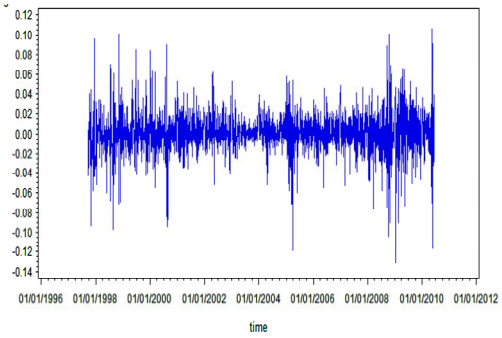

Figure 6. *BET index return series*

In order to test the fractal market hypothesis, we applied the classic method RS (Rescaled Range Analysis) to estimate the Hurst coefficient. The value we obtained is H=0.59, which indicated a fractal, anti-persistent behavior, different from the purely random behavior according to the efficient market hypothesis.

8. Conclusions

The issue of stock market crash predictability is extremely complicated and far from being resolved. This study was intended to have a statistical approach of this problem, focusing on the probability distribution of the returns and on statistic inference.

The statistical tests applied to the daily BET series indicate that returns come from a stable, heavy-tailed distribution; moreover, the efficient market hypothesis in its weak form is rejected in favor of the fractal market hypothesis, which indicated a certain degree of predictability.

In our future researches we intend to apply and develop other models, especially log-periodic ones, in order to study the behavior of central and east-European capital markets, and formulate a robust conclusion regarding the predictability of stock market crashes.

Acknowledgements

This paper was cofinanced from the European Social Fund, through the Human Resources Development Operational Sectorial Program 2007-2013, project number POSDRU/89/1.5/S/59184, „Performance and excelence in the post-doctoral economic research in Romania”.

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MORTGAGE BONDS IN UKRAINE: CURRENT STATE AND PROBLEMS OF APPLICATION

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Abstract. *The article examines issue and circulation of mortgage bonds in Ukraine. Main features of these securities, peculiarities of their coverage are given. Main problems related to this type of financial instruments are pointed out. As of the two types of mortgage bonds, mentioned in Ukrainian legislation (common and structured ones) only former were issued and circulated, main attention is paid to them, but it is also observed, why there were not still issues of the latter.*

Keywords: financial institutions; mortgage bonds; mortgage coverage; special mortgage institution; refinancing.

JEL Code: G21.
REL Code: 11C.

1. Introduction

One of the main factors that hinder development of the mortgage lending system in Ukraine is a significant shortage of the bankroll suffered by the enterprises performing such lending. In general, sources for the bankroll can be divided into three groups:

- deposit-based;
- purpose oriented;
- investment-based (Bazylevych, p.92).

Employment of the first two sources is complicated by the generally low-level capitalization of the Ukrainian banks that calls forth necessity to search for additional sources of bankroll for the mortgage loans. At the beginning of the 2000-s influx of relatively cheap foreign investment funds caused buoyancy on the mortgage lending market, but it also made Ukrainian financial system dependent on the foreign capital, which in the wake of the world financial crisis created great problems. Therefore, to create effective mortgage lending system it is necessary to find sources of the long-term funds. For this reason, instruments of mortgage refinancing (i.e., mortgage-based securities and covered bonds) assume greater importance as a source of additional bankroll for the mortgage lenders.

There are certain requirements to the mortgage-based financial instruments. As there are three main subjects of the refinancing process, namely debtor, creditor and investor, such instruments have to ensure balance between their interests. It is difficult, taking into account that they pose different goals. Debtor generally wants to obtain assets, paying interest which wouldn't make up a large part of his income. Creditor tries to maximize his profit and dividends of its shareholders. Furthermore, the goal of creditor is to lower risks. Investor also wants to maximize his profits and to lower the same risks as creditor (Kryvovyazyuk, p.16).

Securities based on mortgage lending are comparatively new for Ukrainian financial systems. Pursuant to the legislation here are two main types of them in Ukraine, mortgage certificates and mortgage bonds (while there also other securities using mortgage).

Nevertheless, the only ones that were effectively issued by far are the latter. For this reason, it is the mortgage bonds system that is examined in this article, for experience of their issuance is useful in evaluation of the perspectives of their application, and also shows their shortcomings needing to be improved.

Concept of mortgage bonds appeared in Ukraine after adoption of Law on mortgage bonds (December 22, 2005), which provides legal framework for their issuance and circulation. Another material legislation regarding their circulation is Law on mortgage, which defines mortgage as a form of backing of the obligation performance, guaranteed by the real property. It is also necessary to mention that real property is defined by the said act as parcels of land, objects situated on them and integrally connected with them, relocation of which is impossible without their depreciation and change of their purpose. Legal regime of real property is also extended upon aircrafts, sea-going vessels, river-going vessels, spacecrafts, and interests in building projects in process.

Mortgage bonds are securities that testify a payment by their owner and assure the obligation of an issuer to refund its face value and pecuniary profit in order determined by legislation and prospectus, and in case of issuer's failure to fulfill his obligations give their holder a right to satisfy his claims at the expense of mortgage coverage. Coverage for mortgage bonds can only be formed of mortgage assets, but after it was formed for the first time it is allowed to add other types of assets into it.

There are two types of mortgage bonds in Ukraine – common mortgage bonds (CMB) and structured mortgage bonds (SMB). There is a great difference between them. The first and most material one is the list of persons entitled to issue each of the respective securities. CMB is issued by mortgage lender. The latter may be any financial institution (except specialized mortgage institution) that under the legislation is entitled to issue loans reimbursement of which is guaranteed by mortgage and/or purchased right to claim mortgage loans issued by other subjects. SMB is issued by specialized mortgage institutions.

2. Common mortgage bonds

CMBs in Ukraine are largely modeled after covered bonds. Issuer of these securities can be mortgagee himself, but Ukrainian law also allows possibility to purchase right of claim from him (which is not characteristic for the classic one-level system). This clause allows mortgagee to perform securitization of the mortgage loans, removing them from his balance sheet by performing assignment. Issuer is liable for the obligations stemming from CMBs with the mortgage coverage and all his property.

Except this, other principles are applied, insuring reliability of CMBs: (i) principle of conformity that is assured by such legal requirements: application of the mortgage coverage quotient (which represents ratio of the obligations unpaid by issuer under relevant issue of CMBs to the amount of mortgage coverage); this quotient shall not exceed 0.9, for CMBs fully guaranteed by the State the maximum limit is 1 (conformity of coverage); requirement that average maturity term of the mortgage and other assets included into the coverage shall exceed CMBs' maturity term (conformity of terms); requirement that average return on the mortgage and other assets included into the coverage shall exceed return on relevant CMBs (conformity of rates); (ii) requirement of insurance of property used as mortgage against its accidental destruction for the mortgage loan to be included into the mortgage coverage; (iii) restriction to include mortgage loans guaranteed by certain types of property (construction projects in process, interests); (iv) register of mortgage coverage; (v) restraints on performing operations with mortgage coverage; (vi) removal of mortgage covering from liquidation value of issuer.

Yet, there are certain requirements considered to be pretty common in international practice (especially for covered bonds) (Razumova, pp. 89-91) that are not applied to Ukrainian CMBs. The first one is requirement of the issuer's activity specialization. It was

mentioned that issuer i.e. mortgage lender can be any financial institution that issues mortgage loans or obtained right to claim them from the other persons. As such activity isn't considered as specialized by the Ukrainian legislation, it is opened virtually to any financial institution which significantly lowers reliability of CMBs. Besides, there are no special requirements to the issuer regarding licensing (which is the case for German mortgage banks, for example).

Absence of the specialization clause also makes it impossible to use another important means for ensuring covered bonds reliability, which is dynamic coverage mass. For example, covered bonds in Germany (Pfandbriefe) are guaranteed with all coverage mass, accumulated by issuer (mortgage bank) (PfandBG). In the case of Ukrainian CMBs, separate coverage is formed for each new issue. The main cause for this is that most of reliability requirements are posed at the stage of coverage formation instead of the stage of issuer licensing. While there is a concept of "mortgage bank" in Ukrainian legislation, its status is not regulated. Mortgage banks are mentioned in the Law on banks and banking as one of the types of specialized banks, but neither their activity, nor requirements applied are specified.

Apart from the lack of relevant legislation, there are purely economical problems that hinder development of CMBs in Ukraine. As it was mentioned, Ukrainian banks suffer from low level of capitalization if compared to their Western counterparts. Mortgage loans are widely regarded as risky in Ukraine because of their long-term maturity and large amounts which makes specialization in this type of lending inappropriate for most of banks. There is also problem of underdevelopment of the mortgage market. For this reason, CMB issuers are few: two commercial banks ("Khreshchatyk" and "UkrGazBank") and State Mortgage Institution (SMI). The latter was created for the purpose of developing mortgage lending in Ukraine, mainly by providing refinancing for mortgagees obtaining their mortgage claims. It is worth noting that among CMB issuers there isn't any of the largest mortgagees (UkrSibBank, Raiffeisen Bank Aval, UkrSocBank, OTP Bank, Nadra Bank) (UNIA, p. 31). Most of banks prefer to use refinancing schemes provided by SMI, assigning their mortgage claims to it. Reasons for this are different, but mainly it is caused by relatively high cost of issue and placement CMBs – another problem needed to be solved by improving mortgage market infrastructure and another argument in favor of specialization of CMBs issuers. While SMI provides certain benefits for its partners, its activity bears high degree of risk. Foreign experience (namely, US subprime mortgage crisis) shows potential danger of two-level mortgage securitization. As for now, SMI has serious financial problems: its standard assets comprise only 30 % because of poor performance of some of his partners (in the first place, Nadra Bank). Lately, efforts were made to improve financial performance of SMI; pursuant to the Government decision its nominal capital was increased up to UAH 2.2 billion (approximately 197 million Euros). Nevertheless, there still remain many problems to solve. For these reasons representation of Ukrainian CMBs on the European stock markets is insignificant (as for 2009, there was 4 million Euros worth of CMBs outstanding, compared to 578 million Euros worth from neighboring Poland, for example) (European Covered Bonds, p.77).

3. Structured mortgage bonds

As opposed to CMBs, SMBs' status still needs to be regulated. For this reason, there wasn't as for now any issue of these securities. Relevant regulations were adopted for CMBs (among them, Regulation on the mortgage coverage of common mortgage bonds, administration of the mortgage coverage register and the management of mortgage coverage of common mortgage bonds); for SMBs there still are not such regulations.

As it was mentioned, issuer of the SMBs is specialized mortgage institution. For this type of financial agents specialization clause is applied: specialized mortgage institutions can only purchase (in certain cases also sell) mortgage assets and issue SMBs. As specialized mortgage institutions cannot be mortgagees themselves they represent classic model of

mortgage special purpose vehicles typical for two-level mortgage system. Ukrainian legislation openly state that no requirements regarding capital adequacy, liquidity, activity licensing which, on the one hand, simplifies process of issuers registration but, on the other hand, significantly reduces reliability of securities issued by this type of financial agents. For this reason, SMBs may potentially require significant state guarantees (both explicit and implicit). Therefore, it is highly unlikely that specialized mortgage institutions, at least in the near future, can be created otherwise then under aegis of the state, which certainly doesn't benefit market self-regulation.

In connection with this, it is worth mentioning recent decision of the Government that amended statute of SMI, limiting its functions to refinancing of the mortgage loans (earlier, it also could perform mortgage lending) which may signify plans to reorganize it as the first specialized mortgage institution. On the other hand, there's still no regulation regarding process of creation and registration of such institution, which also bars SMBs from appearing on the market.

As opposed to CMBs, SMBs can use dynamic coverage mass: issuer has a right to form single coverage for multiple issues. Another significant difference consists in the obligation of issuer to place mortgage coverage under management of the coverage administrator (for CMB issuer it's optional to do this). There are restraints of the liquidation procedure of specialized mortgage institutions – it can be only initiated by the court decision (and not by its participants). Another important requirement applied to SMBs concerns obligatory regular audit to ensure compliance of mortgage coverage with the data given in prospectus and with legislation.

On the other hand, requirements applied to SMBs are more flexible: for CMBs there is a rule that indebtedness under mortgage loans to be included into mortgage coverage shall not exceed 75 per cent of estimated value of the property used as mortgage; for SMBs this ratio is defined by prospectus.

In general, it is safe to say that if CMBs are more or less modeled after covered bonds, it is clearly mortgage-backed security (MBS) that serves as a blueprint for SMBs. Issuer of these securities is never a mortgagee.

4. Conclusions

Drawing conclusions of application of mortgage bonds in Ukraine it is necessary to say that there are great achievements in that sphere. These mortgage-based debentures were issued and began their circulation despite significant problems. Suffice to say, that mortgage certificates, introduced by the earlier legislation, were never issued at all and as for now their future remains vague. Mortgage bonds represent certain compromise between one-level (or European) and two-level (or American) systems of mortgage loans refinancing. Basically, CBMs may be used for both of them, depending on who is their issuer: mortgagee or a person that has purchased mortgage claims. As for now, CBM mechanism is used more in its "American" mode through the SMI. As it was mentioned, this system poses serious risks (which, of course, don't make it inherently "bad"). Possibility of large scale removal of mortgage loans from the balance sheet creates illusion of security for financial institution and creates great temptation of speculation, especially in emerging countries (such as Ukraine). On the other hand, this shift towards two-level system is highly understandable, if high cost for banks to issue their own CBMs is taken into account. To overcome this problem, complex approach is necessary. Issues are to be solved in many spheres, such as circulation of the mortgage bonds *per se*, mortgage lending and financial activity in general.

As it was mentioned, none of the biggest mortgagees doesn't issue its own CBMs, which tells about two things: that these securities are not regarded by banks as effective source of assets and that these securities are used mainly for speculative reasons. Taking into account that declared purposes of mortgage bonds are to lower costs of mortgage lending and

create reliable financial instrument for investors, current situation on market is far from satisfactory. It can be changed by gradually imposing requirements of specialization for the issuers of CMBs, which should include not only purchase of mortgage claims and issuing mortgage bonds, but also actual mortgage lending. As an additional stimulus privileges connected with performance of state-sponsored programs in the housing sphere can be used.

As for SMBs, their effective issue and circulation can only be possible under the circumstances of developed financial market, which, sadly, is not the case in Ukraine. Therefore, their future in Ukraine as for now seems pretty vague.

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A NONPARAMETRIC APPROACH TO THE FINANCIAL CONVERGENCE IN THE EUROPEAN UNION

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Abstract. *The paper studies the process of financial convergence in the EU, by using the stochastic Kernel density estimation. The analysis uses monthly data on the 10-year government bond yields from a number of 11 EU old Member States, and the period of analysis is 1980-2010. The paper finds evidence of convergence on long term and evidence of divergence on short term. The effects of the global financial crisis on the financial convergence are also debated. In subsidiary, the paper underlines the weak points of the traditional techniques in the convergence analysis as well as the advantages provided by the Kernel density estimation.*

Keywords: financial convergence; stochastic kernel; bonds.

JEL Codes: C14, G15, C58.
REL Codes: 11B, 20F.

1. Introduction

Creation of Euro zone and introduction of a common monetary policy in the European Monetary Union (EMU) area have stimulated the financial convergence and also has produced a number of changes in euro area government bond markets, which provides the main source of financing for central and local governments. The achievement of financial integration is particularly important in the EMU space because it allows local government to reduce the cost of serving their debt and also makes easier the process of finding financing sources. The explanation is that integration of euro area governmental bond markets facilitates portfolios diversification and also minimization of exposure to local economic shocks. Other implications of financial integration are a greater transparency, a more homogenous pricing of bonds, a better quality of the macroeconomic management, and a more symmetric impact of monetary policy in the euro area (Baele et al., 2004). The effects of financial integration on economic growth and volatility are controversial, the empirical evidence suggesting, at a global level, that the relationship between these variables is not robust (Prasad et al., 2003).

Introduction of Euro represented a major step in the process of financial integration, but the process is not completed yet (Baltzer et al., 2008). Despite of the real progress made by the early 2008, the global economic crisis has negatively affected financial convergence of the euro area countries. The dynamic analysis and measurement of this process could give insights to the main achievements over time and also to the real effect that the global economic recession carries on the euro area financial convergence.

The literature of financial convergence is based on the same measurement tools as those used in the analysis of economic convergence. Despite the apparent convergence of euro area government bond markets suggested by the traditional models, especially before the global economic crisis, the empirical evidence indicates some frictions and temporary interruptions into this process (Baele, 2004). Development of new models to estimate and analyze the actual stage of financial convergence in the euro area is therefore needed.

This paper studies the main steps underlying the process of financial convergence in the euro area using the stochastic Kernel density estimates, which is not a traditional model in the convergence literature. Different sub-periods are considered to reveal the grouping of countries upon their trajectories in the process of financial convergence. The global financial crisis is included in one of these sub-intervals, in order to find to what extent it has slowed down or even broken the process of financial convergence. The paper finds evidence of sharp convergence, slow convergence, stagnation and even divergence, which leads to the conclusion that the financial integration is not a continuous and irreversible process.

The paper is structured as follows: the first section is the introduction and provides a short presentation of the topic approached in the paper and of the importance it has in the convergence literature. The second section is the literature review and gives insights to the main steps, theories and empirical findings made over time in the analysis of economic and financial convergence. The section three is devoted to the description of methodology used to measure financial convergence. The empirical analysis is presented in section four and the section fifth concludes on the main results.

2. Literature review

The growth literature provides the basic methodological instruments for the analysis and measurement of economic convergence. Most of the theories of convergence rely on the neoclassical growth model (Solow, 1956) which implies that there is a negative relationship between the initial per capita output and its growth. According to this theory, poorer countries should advance faster than richer ones and will eventually catch up with the latter, when different countries are at different points relative to their balanced growth path, have different initial conditions, but the same steady state. This relation is referred to as absolute (unconditional) convergence. When the initial capital endowment is not the only difference between economies, but also structural differences arise, then the convergence is referred to as being relative (conditional). Despite of the standard theory which assumes that poorer countries advance faster than richer ones toward a common steady-state or toward their own steady-state, the empirical evidence shows the increase of inequality and income divergence over time (Pritchett, 1997). This paradox is the root of the so-called convergence clubs (Baumol, 1986), which are formed by a leader and a group of followers. According to the theory of convergence clubs, the leaders preserve their supremacy in terms of development and growth over a large period of time, while only a small number of followers converge with the leader over time. In the context of the European integration, the concept of convergence clubs suggests that the achievement of full economic or financial convergence is problematic, and a number of countries will never completely catch up with the leaders. The convergence clubs are met not only in the economic convergence, but also in the financial convergence (see the empirical section of the paper).

The literature of convergence is based on the seminal paper of Barro and Sala-i-Martin (1992), who have introduced the concept of beta-convergence, which is the speed of convergence of an economy towards its steady state. The analysis of convergence relies on two fundamental concepts: beta- and sigma- convergence. The beta-convergence therefore occurs when there is a negative correlation between real per capita income growth over time and its initial level and sigma-convergence when the dispersion of real per capita income across a group of economies falls over time. The two concepts are not similar and beta-convergence is not a sufficient condition for sigma-convergence.

The traditional methods used in the growth literature have been also extended to the measurement of economic and financial integration. The beta and sigma-convergence measures have been introduced in the measurement of financial convergence by Adam et al. (2002), who consider that apart from beta-convergence, the cross-sectional dispersion in bond yields, i.e. the sigma-convergence, represents a measure of the degree of integration. Also the

concept of convergence clubs could be applied in the analysis of financial convergence, as discussed in section 5.

The concept of beta-convergence has been criticized in literature for a number of reasons (Quah, 1993, 1996, Johnson, 2000, Rassekh, Panik, Kolluri, 2001, Linden, 2002). The basic criticism of beta-convergence is the possibility of Galton's fallacy, i.e. a negative value of beta may not indicate convergence of growth rates but rather regression toward the mean (Friedman, 1992, Quah, 1993). Another criticism is that the growth regression assumes the condition of homogeneity, i.e. all economies under analysis have the same rate of convergence (Bernard, Durlauf, 1996). Therefore, the process of formation of convergence clubs(1) cannot be identified by the beta-convergence theory. Quah critics the concept of beta-convergence arguing that it brings no information on the way that poor economies are catching up with the richer ones. Friedman (1992) considers that the true test of convergence is a decline in the variance among individual observations. This is in fact the sigma-convergence.

Coming back to the financial convergence, at least at a theoretical level one might say that financial markets should converge faster than the labor and goods markets, since the capital flows cross borders faster than the goods or labor force. Besides the removal of national barriers to the capital flows, harmonization of regulations on financial markets as well as coordination of macroeconomic policies, all should stimulate and accelerate the process of financial convergence in the EMU area. But first of all, the financial convergence requires the elimination of all frictions and barriers to the intermediation process. In case they still exist, the financial integration requires symmetric effects on the EMU regions and countries.

3. Methodology

The stochastic kernel density allows estimating the conditional density function, which is a transition function obtained using kernel density estimation. This estimator belongs to the class of non-parametric density estimators. In contrast with other techniques specific to the measurement of convergence (beta- and sigma-convergence), it uses all information in the data, i.e. the first period, the last period and the transition process. For instance, the beta-convergence considers the transition relative to the first period, but neglects the last period, while the sigma-convergence looks at all observed periods, but only in terms of standard deviations (Weber, 2009).

The density distribution φ_{t+1} of a variable x follows a first order Markov process:

$$\varphi_{t+1} = M \cdot \varphi_t \quad (1)$$

The M operator maps the transition of variable x from its distribution in the state t to its distribution in the state t+1. It assumes either a finite number of states in φ_t distribution using the Markov Transition Matrix (Shorrocks, 1978) or using a continuous state formulation in the stochastic kernel (Quah, 1996). In a discrete version of the model, the operator M is determined by partitioning the set of possible income values into a finite number of intervals. The properties of M are described by a Markov chain transition matrix whose (i, j) entry is the probability that a country in state i transits to state j in the space of governmental bond yields, in one time step. As the governmental bond interest rates are staked in a continuous variable, the transition probability matrix will be a matrix of a continuous of rows and columns. Therefore, the operator M can be seen as a stochastic kernel or a transition function, and financial convergence can be analyzed by representing the shape of the bond yield distribution at time $t+\tau$ over the range of bond yields observed at time t.

According to Quah (1996), if u and z are elements of B and also probabilities measures in (R, R), the stochastic kernel is a function relating u and z by the function $M_{(u, z)}$: (R, R) -> (0, 1), such that:

(i): For each y ∈ R, $M_{(u, z)}(y, \cdot)$ is a probability measure in (R, R);

(ii): For each $A \in R$, $M_{(u, z)}(\cdot, A)$ is a measurable function in R;

(iii): For each $A \in R$, it is valid that $u(A) = M_{(u, z)}(y, A)\, dz(y)$

At an initial point in time, for given *u*, there is some fraction of economies *dz(u)* with incomes close to *u*. When being normalized as to be a fraction of the total number of economies, the number of economies in that group whose incomes fall in the subset *A* can be written as *M (y, A)*. The integral $M_{(u, z)}(y, A)\, dz(y)$ indicates the number of economies that end up in state *A* regardless of their initial income levels. Stochastic Kernel *M* can be therefore seen as the description of transitions from state *y* to any other portion of the underlying state space R.

According to Arbia et al. (2005), the stochastic kernel can be also written as:

$$\varphi_{t+\tau}(y) = \int_0^{\infty} f_{\tau}(y|x)\varphi_t(x)\,dx \qquad (2)$$

Where *y* is the relative per capita income in period $t+\tau$, *t* is the relative per capita income in period *t* and $f_\tau(y|x)$ is the conditional density given the relative income in period *t*.

One of the most popular kernel functions is the standard Gaussian function with zero mean and 1 variance.

$$f(x) = \int_{-\infty}^{+\infty} f(y, x)dy = \frac{1}{\sqrt{2\pi}} e^{-\frac{(x-x_i)^2}{2h^2}} \qquad (3)$$

Where, *x* is a random variable and *h* is a smoothing parameter called the bandwidth. The importance of bandwidth relies on the fact that the size of bandwidth chosen for kernel density estimation determines the degree of smoothing produced.

4. Empirical analysis

The returns on 10-year government bonds are compared in a number of 11 EU countries (10 EMU countries plus UK), in order to analyze the process of financial convergence over time. Even though the governmental bonds issued by EU countries have different credit risks, we presume that this factor has an insignificant effect on the price of governmental debt.

The analysis of all EU countries is difficult as their bond markets started at different moments in time. For instance, data for Finland are available from 1987, data for Greece from 1986 and data from Slovakia, Cyprus and Malta from 2000 or 2001 onwards. The New Member States started this market even later. Beside this, in some countries the bond markets either do not have a secondary market, being held just by banks, or they have a very low liquidity on the secondary market. For all these reasons, we have included in our analysis a number of 11 EU countries: Spain, Portugal, Ireland, Netherlands, Luxembourg, Italy, Germany, France, Belgium, Austria and UK. The period under analysis is 01.01.1980-01.02.2010 and the data are monthly collected.

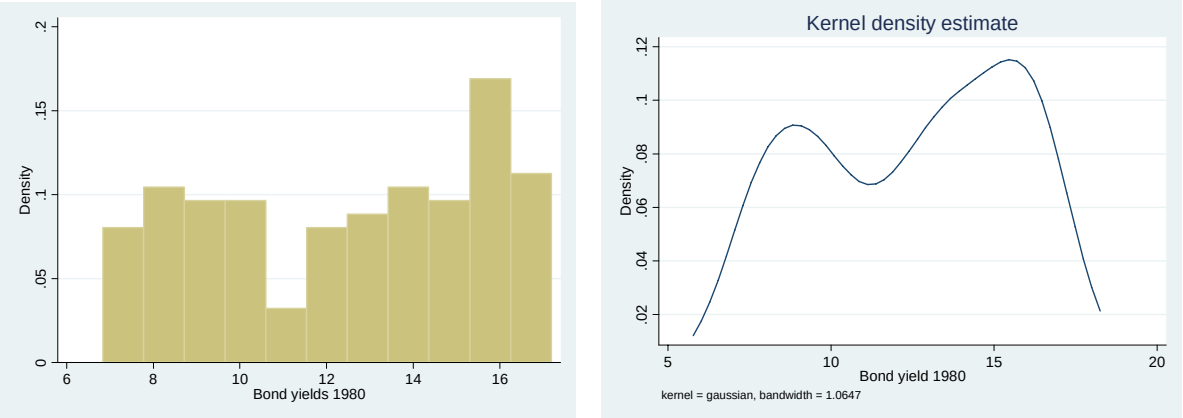
In table 1 the summary statistics shows that the average of interest rates has decreased in the period of analysis. In the period after the EU formation, while the minimum levels remains almost unchanged compared to the precedent period, the maxim levels have sharply decreased. When looking at the whole period of analysis, the decrease of maximum levels is more pregnant than those of minimum levels. The standard deviation has slowly decreased, indicating the convergence of national interest rates to their mean.

Table 1

Summary statistics by sub-periods, 1980-2010

Sub-periods	Mean	Std.dev.	Min	Max.
1980-1985	12.81	3.75	6.4	22.8
1986-1990	9.76	2.69	5.36	17.09
1991-1995	8.92	2.16	5.61	15.76
1996-2000	5.66	1.18	3.7	10.69
2001-2005	4.36	0.63	3.04	5.45
2006-2010	4.15	0.49	0	5.76

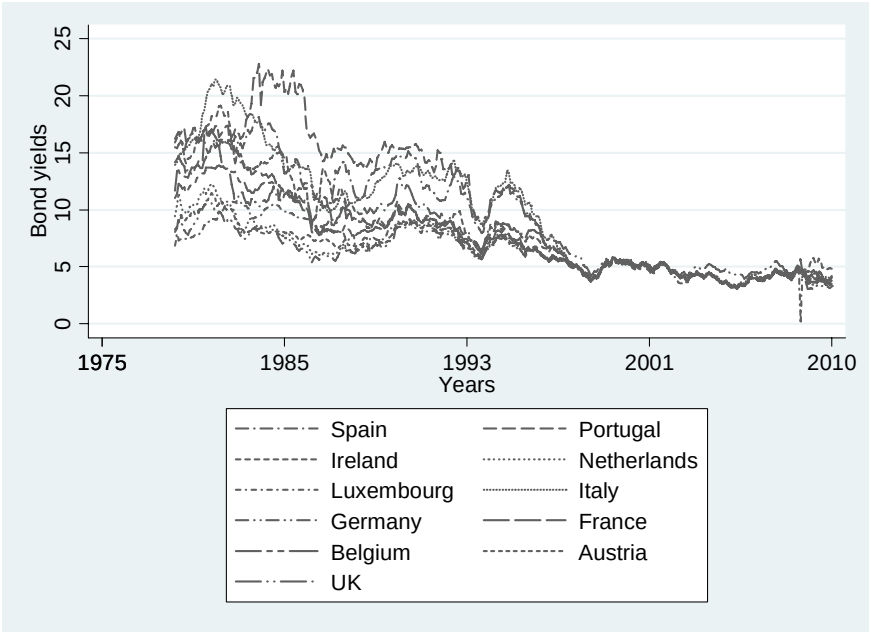
Figure 1 presents the Kernel density estimate and the histogram for the initial period (1980), suggesting the existence of two clusters of countries, one having interest rates less than 10% and another around 15%. The twin peaks shaped in the figure are referred in literature as "convergence clubs" (Quah, 1996). The histogram also indicates the lack of convergence among the governmental interest rates in the EMU area.



a) Histogram, 1980 b) Kernel density, 1980

Figure 1. *Histogram and Kernel density estimates for the first period of analysis*

Figure 2 below represents the dynamic of the governmental bond yields in a number of 11 EMU countries, between 1980 and 2010.When looking at the whole period of analysis the process of convergence is evident and the yields average level is continuously decreasing. Remarkable progress has been done in the first half of the period, from 1980 until 1999, while from 2000 onwards the bond yields begin to diverge. Apart from the precedent period, the average of bond yields begins to slowly rise from 2005 to 2010. The divergence is growing after the start of the global economic crisis in 2007 and reaches a maximum level during the year 2009. From 2009 to 2010 the bond yields start moving in a smaller fluctuation band, but they don't seem to converge.



Note: Only January accounts for 2010.

Figure 2. *Bond yields, 1980-2010*

In Figures 3-5 the stochastic kernel density estimates are presented as 3D graphs, in order to illustrate the transitions from the initial year (1980) to different years (1980-1990; 1980-2000; 1980-2010). This period 1980-2010 also includes the effect of the global financial crisis. The graphs below plot the initial level of bond yields in 1980 on the x-axis, against the bond yields in the subsequent years on the y-axis (1990, 2000 and 2010). The z-axis represents the density estimates. The aim of this attempt is to find clusters of countries resulting in the transition process, which could give insights to the financial convergence process.

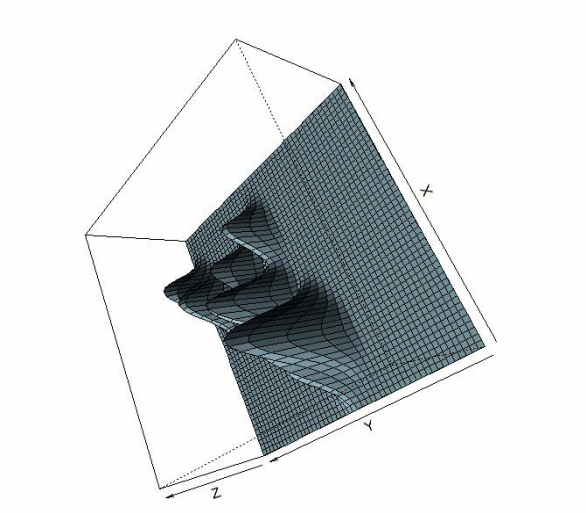


Figure 3. *Kernel density estimate of the transition from 1980 to 1990*

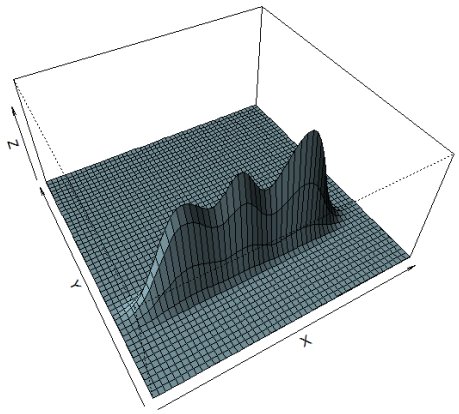


Figure 4. *Kernel density estimate of the transition from 1980 to 2000*

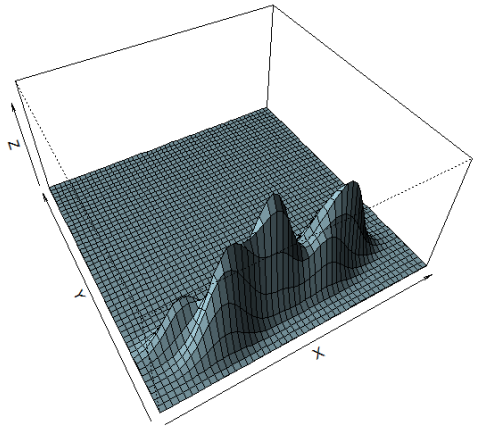


Figure 5. *Kernel density estimate of the transition from 1980 to 2010*

Figure 3 indicates a number of 6 clusters in the transition from 1980 to 1990, which denotes the absence of the financial convergence, or a very slow progress in this sense, with the 11countries fluctuating around their average bond yield. When extending the period of analysis with 10 years, i.e. from 1980 to 2000, the convergence becomes evident in Figure 4. In this period of time, the countries converge toward a level which is lower than their average in 1980. In fact, this is the period of time when the convergence made the most impressive progress by now. In this process, three clusters can be identified, upon the trajectories that countries followed from the divergent bond yields in 1980 to the convergent ones in 2000. When looking at the whole period of time (1980-2010) in Figure 5, 4 clusters results from analysis. Besides the clusters which are also present in Figure 4, there is another smaller cluster which suggests the divergence of yields from 2000 to 2010. The comparison between Figure 4 and Figure 5 indicates, once again, that the financial crisis which occurred after 2000 has reversed the convergence way, initiating a divergence pattern.

5. Conclusions

Using as measurement tool the stochastic kernel density estimation, the paper finds evidence of financial convergence when considering a long period of time and also finds financial divergence when looking at short sub-intervals. In particular, from 1980 to 2010, and especially from 1980 to 2000, the progress on the way of convergence is clearly suggested by the analysis, but from 1980 to 1990, and even more pregnant from 2007 to 2010, divergence patterns occur. In other worlds, the advances taken in the convergence process has been partially offset by regresses, but fortunately the advances were much more important than the slowdowns or regresses. The period 1999-2002 benefits from the deepest financial convergence, when beside the 10 EMU countries included in our analysis, UK also followed this process. After 2002 onwards, UK takes another trajectory in comparison with the other countries, by keeping a high level of the bond yields.

The global financial crisis seems to open a new chapter in the process of financial convergence, as it has moved away the old EU Member States from the convergence way. Despite of the tightening of yields variation band from 2009 to 2010, countries do not seem to converge yet.

Over time, the average level of the governmental bond interest rates significantly decreased by the moment of euro introduction, and after that they have fluctuated in a tight band, which begins to gradually extend from 2008 to 2010.

Apart from other papers using the same methodology (Weber, 2009), this study focuses on the last 30 years and finds evidence of divergence on short recent sub-intervals. Being an analysis and measurement instrument based on the graphical analysis, the kernel density estimation does not provide coefficients or summary measures describing the process, but allows having a complex view on the entire process of convergence/ divergence on different periods of time, which is not specific to the traditional models, such as the beta approach.

Note

(1)The „convergence clubs" (Quah, 1997) denote identification of two groups of economies in the analysis of convergence: a group pf convergent economies and a group of divergent economies.

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OPPORTUNITIES FOR FINANCING THE COMPANIES THROUGH STOCK EXCHANGE MARKETS

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Abstract. *The need for capital market in a market economy can not be questioned. The capital market belongs to nowadays reality, its main objectives are related to capital mobility, based on the principle of economic efficiency and minimizing risk associated with investment and related to financing economic activity.*

The mechanisms for financing companies through the stock market concern the issue of shares and bonds, each of these mechanisms having their own specifications for application. The process of financing through capital market requires a broader culture of the management teams involved in the functioning of the capital market on which the company operates.

Keywords: stock exchange; financing methods; capital market; shares; bonds.

JEL Code: G100.
REL Code: 11B.

1. Introduction

Nowadays, the stock market is a reality that can be found in any modern economy. The capital market is a necessity in any economy; it is particularly characterized by extreme dynamism and innovation. The capital market must constantly adapt to the economic environment, but more important is that it can greatly influence the economic environment in the country in which it operates.

The capital market offers many opportunities, but also creates risks for all categories of participants. In order for the mechanism of market economy to function smoothly, the capital market contributes to the achievement of two important goals: it ensures the mobility of capital based on the principle of economic efficiency and minimizing the investment risk; it has a role in financing the economic activity.

2. The capital market in the economy of a country

The economic contribution of capital markets is often emphasized by the possibility of obtaining funds for investments in long-term assets. However, capital markets may also contribute to economic growth and development of a country, namely: capital markets can contribute to increasing efficiency, competitiveness and solvency of the financial sector; capital markets have a great role in mobilizing financial savings and also in the efficiency of investment allocation. Capital markets can significantly affect the solvency of the sector in which companies operate and also offer the possibility of financing start-up companies.

To quantify the benefits capital markets can bring to an economy, first it must be taken into account any cost or disadvantage that resides from its functioning. The disadvantages or costs generated by the capital market are given by the inevitability of economic crises and the impact these crises had on obtaining the capital, the danger of monopoly control within an

economy, the interest rate volatility, price volatility, investors' confidence in the financial system and its power, the stable of unstable feature of the financial system.

Where there is an active market for shares or bonds, it represents an alternative to the existing banking system, both from the perspective of the depositors and users of funds. Through this alternative, depositors will be able to compare the revenues they will gain from investing in shares or bonds with the revenues they will get from bank interests. This is applicable also to companies, which have the possibility of comparing funding source costs.

Another advantage of the capital market is the fact that the companies that have shares or bonds traded on regulated capital markets cannot hide poor performance recorded during any financial year. This is not the case of the so-called "closed companies", which does not trade shares or bonds on regulated markets.

3. Financing companies through the stock exchange market

As for the performance of capital mobility, the capital market is able to achieve the transfer of capital between owners, both on national, regional, global level and industries within the same/different areas.

The financing mechanisms through stock markets are different from other mechanisms due to the fact that, in the stock market case, an important and decisive factor in taking a decision is the anticipation of investor's expectations concerning the efficiency of capital usage.

4. Financing based on issuing shares

The process of financing companies through capital market represents an alternative to the money market or to getting a loan. If the manager chooses to finance a company through the capital market, an IPO (Initial Public Offering) will be needed, so that the shares can be sold. Hence, a company that requires financial resources to finance the development of its activity or to finance an investment project will put for sale its shares, bonds or both. This sale is provided by financial investment service companies.

The financial resource flow is the following: investors who buy shares and/or bonds pay an amount of money for it; money arrives to the issuing company, which will further use it according to the purpose the securities issuance was made. The buyers of the shares will receive dividends and the buyers of the bonds will receive interests.

Compared to financing through banking system, in which case an applicant must meet the requirements of each bank internal regulations, financing through capital market is more flexible from the perspective of a company, because it can establish its own levels of attracted resources.

In the case of financial instruments public issuing, the issuing company is the one that sets the conditions under which securities will be sold. This flexibility is a relative one: in order for the selling to take place successfully, the conditions imposed by the issuing company have to meet the investors' interests.

5. Capital increases

Share capital is a component of owner's equity and it represents the total value of contributions subscribed by the shareholders when the company was created. Share capital represents the aggregate nominal value of all shares issued, the total value of cash and other contributions of other elements incorporated in the share equity or of other operations that lead to its modification. The increase of the share capital can be done in two different ways. The first way is by issuing new shares and increasing the nominal value of existing shares in exchange for cash and/or other contributions. The second way relates to the incorporation of reserves (except for legal reserves), benefits, issuing premiums or to the compensation of account receivables through company shares.

If public subscriptions exceed share capital stated in the issuing document or if smaller than it, the founders are required to undergo the increase or decrease of share capital to the approval of the constituent assembly. Increasing the share capital by increasing the nominal value of shares can only be decided through the vote of all shareholders, unless reserves, benefits and issuing premiums are incorporated.

Share issued for capital increase will be offered for subscription first to existing shareholders, according to the number of shares they possess. The existing shareholders can exercise their right of preference only within the period decided by the General Assembly, unless the integrant document does not provide other term. After this period, the shares will be offered for public subscription. Increasing share capital without granting the right to existing shareholders is considered to be null, from the legal point of view.

6 . Financing based on issuing bonds

The world financial practice has shown bonds are the most popular financial instruments, and that, within the capital markets of developed countries, the number of bonds transactions is much higher than that of stocks trading. This is not the case in Romania, because the bond market is not that developed at the moment.

The features of the Romanian economic situation - instability, inflation, large fluctuations of interbank interest rates, currency depreciation - were obstacles in the path towards success of any fixed revenue loan.

Bond issuing is a cheaper way of financing a company than bank loans, but difficult to be reached by small companies. This method of financing is particularly accessible for banks, large companies with a solid financial history and local authorities (through municipal bonds).

Bonds incorporate lots of advantages. For the issuers, bonds incur lower costs compared to bank loans and the reimbursement period is much larger than money market loans. For the investors, bonds are instruments with low risk and offers satisfactory yields.

7. Funding SNTGN Transgaz SA Mediaş through Bucharest Stock Exchange (BSE)

The company studied in this paper is SNTGN Transgaz SA Mediaş. The main activity of the company is the transportation, dispatching, international transit of natural gas, research, design within natural gas transport domain. The main activities that generate revenues for the issuer are the transportation, transit of natural gas and sales of natural gas received in exchange for transit services performed for Gazprom Export.

Transgaz provides international transit services for Bulgargaz and Gazprom Export, Gazprom commercial agent, allowing the transfer of natural gas from Russia to Bulgaria, Turkey, Greece, etc.

From November 26 to December 7, 2007, Transgaz Mediaş initiated a primary Initial Public Offer Stocks Sales with allotment rights, having the following features:

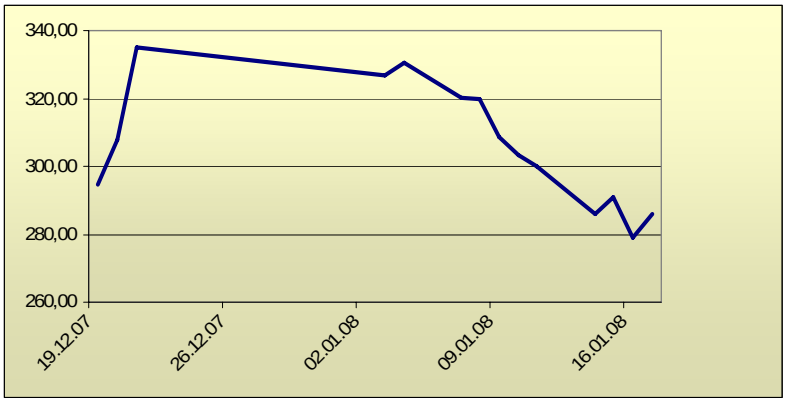
- Number of stocks offered: 1,177,384 stocks from share capital increase were included in the IPO, representing 10% of the issuer’s increased share capital;
- Number of allotment rights attached to the stocks offered: 1,177,384 allotment rights; each stock had one attached allotment right;
- Nominal value of stocks offered: 10 RON/stock;
- Offer value: 225,963,537.28 RON;
- Offered stocks price: 191.92 RON/stock;
- Investors: Transgaz stocks were offered to all investors interested in subscribing in the IPO.
- During the offer period, investors could make subscriptions in two installments:

- Large subscriptions installment – subscriptions have been accepted for an integer number of stocks, so that the value of a subscription to be greater than or equal to 500,000 RON, which represented 60% of the total number of the stocks offered.
- Small Subscriptions – subscriptions have been accepted for an integer number so stocks, so that the value of a subscription to be at least equal to the value of 11 stocks and above the value of 500,000 RON exclusively, which represented 40% of the total number of stocks offered.

The allocation method used was "pro rata" both for the large and small subscription. The offer was oversubscribed by 39.9 times for the big installment and 11.3 times for the small one.

The allotment rights attached to the stocks subscribed began to be traded on Bucharest Stock Exchange on December 19, 2007, with the symbol TGNR01. These rights could be traded within the section of Regulated Allotment Rights Market, codified ORDR.

The Transgaz allocation rights evolution from their issuing date until their withdrawal date is presented in the following figure:



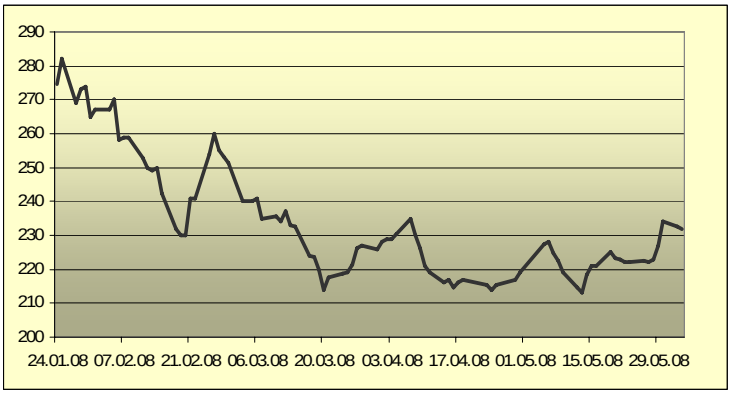
Source: www.bvb.ro

Figure 1. *Transgaz allotment rights evolution,according to the BSE trading history*

In the first trading day of the allotment rights, closing price was 294.8 RON, 53.6% more than the subscription price. The highest price of the allotment rights was reached on December 21, 2007, 335 RON per share, 74.5% higher than the subscription price. The last day of trading Transgaz allotment rights was January 17, 2008, and the price at that date was 286 RON.

First day that Transgaz stocks were traded on Bucharest Stock Exchange was January 24, 2008: the opening price was 280 RON and the closing price was 274.5 RON. The Transgaz stocks symbol is TGN; these stocks can be traded on the BSE main market, under category 1.

The data used for the evolution of Transgaz shares are from the start of the trading until June 2008. The figure below highlights only the most important moments of post-listing.



Source: www.bvb.ro

Figure 2. *Transgaz shares evolution, according to the BSE trading history*

During January and February, the Transgaz stock ticker Transgaz has incurred major corrections, because of the global economic crisis which affected Romania. At this moment, Transgaz shares represent an important part of the BET index.

8. Conclusions

Financing a company through the stock exchange market as an alternative to the traditional banking system solution is still in its infancy, not only when referring to the number of issues or the resources involved, but also the number of potential issuers. This method of financing implies: a financial management teams culture, a capital market culture in general, the ability to manage market exposure together with the brokerage company; embracing the criteria of transparency and communication required by shareholders; perceiving the cost of capital raised on the capital market as an opportunity cost of capital obtained through the banking system.

A functional capital market is one of the premises which ensure a company's ability of structuring the optimal financing package. Hence, the possibility of substituting loans with the issue of shares or bonds through public offerings appears, emphasizing the idea of minimizing financing costs and optimizing future cash-flows by obtaining a longer reimbursement period.

The capital market answers to the need of diversifying financing risk without substituting various forms of financing, by combining it in a mix which meets its needs, in terms of risk minimization.

International stock market experience has shown that, along with the development of capital markets, companies are increasing both classical bank loans and those obtained through capital markets. As markets enter a higher stage of development, the ratio between bank loans and capital market resources changes.

All in all, issues of shares or bonds are intended to supplement and not replace the bank loans, especially when one: wants to allocate significant resources to support large-scale investment plans; searches a longer time horizon of the loan maturity: wants to obtain nonrefundable resources through capital dilution and future dividends.

Notes

(1) *Investing in people!*

Ph.D. scholarship, Project co-financed by the SECTORAL OPERATIONAL PROGRAM FOR HUMAN RESOURCES DEVELOPMENT 2007-2013.
Priority Axis 1. "Education and training in support for growth and development of a knowledge based society".
Key area of intervention 1.5: Doctoral and post-doctoral programs in support of research.
Contract nr.: POSDRU/88/1.5/S/60185 – "INNOVATIVE DOCTORAL STUDIES IN A KNOWLEDGE BASED SOCIETY".
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PERFORMANCE MANAGEMENT IMPLEMENTATION IN HUMAN RESOURCE DOMAIN INTO ROMANIAN BANKING SYSTEM

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Abstract. *In banking practical activity, human resorce movement gravitates around the motivation force, the psycho-social factor which determines achieving performance.*

The performance research was focused on that factor starting from the hypotesys that basic needs are already satisfied and since now there is preocupation for fulfilment of superior needs; also, another target was that of discovering the main motivational element into the banker career.

The research was made inside Romanian banking system, using a sample extracted from four commercial banks, representing 33% market share in term of total assets and 10% share of wallet, in term of Romanian banks total number.

Keywords: performance, motivation, Romanian banking system.

JEL Code: G21.
REL Code: 11C.

1. Introduction

In the actual conditions of globalization process, with a high rhythm of technological development, wide opened markets and fierce competition, the bank management has became preocupied about performance, more and more. Nobody allows himself to pay employees, if there is not excellence. Because of this reason, the evaluation process of professional performance widely spread and it is utilized by all banks.

In the last 20 years, the concept of «performance management» impossed itself as an approach which insure motivational mechanism activation, performance and human resource management optimization.

At this moment, working conditions dramaticaly changed, the banking customers have a lot of options, the competition battlefield is worldwide, and almost any source of competitive advantage seems exhausted, the price of products and services have lost the decisive role in business success. The essence of business is creation of loyal base of employees and customers, insuring bank's survival. On long term, there is not enough to create marketing and organizational development policies, cost and price reductions, retechnologizing, but to introduce a new model of treating the human nature, reconsidering the relationship between employee, bank and customer, through emotional involvement.

It is time to understand and admit there are skills (special gifts, natural talents, which are making people efficient in their domain), which, if they are used in appropriate jobs, stimulate and drive people towards excellence, superior performance. Also, we should give up at the conception that everybody can be educated to make any kind of job. Essential is to figure out that « the element which ensure efficiently functionality of the entreprise complex mechanism structure, is the human element» (Constantinescu, 2005, p. 143).

2. Performance management into Romanian banking system

2.1.The concept of performance management

Unfortunatelly, into the current practical banking activity, the concept of "performance management" is sinonimus with performance evaluation. Reality tells that the performance management system is a larger concept, including a lot of processes,

attitudes, independent behaviors or a coherent strategy regarding performance improvement (Amstrong, 1991, p. 397).

Performance management is a systemic approach of human resource management in general, of performance evaluation in particular, using the objectives, performance, appreciation and feedback as employee's motivational tools, in order to understand and to use their creative potential, at the maximum capacity. Performance management is a way to obtain better individual and organizational results through understanding and driving the performance inside an unitary or contextual business frame, in general or inside objectives and standards previously established, in particular. This means that the approach or performance management concept is based on "management by objectives" philosophy (Manolescu, 2004, p. 387). We can appreciate that one of the key component of the performance management is the "performance evaluation".

In the banking business practical activity, human resorce movement gravitates around the motivation force, the psycho-social factor which determines achieving performance.

To motivate people means to reward their contribution on the bank's progress, their innitiative, effort and achievement, and more than that, to create for themselves the feelings of usefulness, given by objective and subjective dimension of the work.

There were identified seven psychological needs which make the human being to work: the need of engaging the physical capacity into a challenging work; the need of learning by working; the need of taking decission and innitiatives; the need of positive social contact and recongnition inside of the bank; the need of working for reaching the bank's objectives and linking their lifes with the group; the need of ensuring a safe future.

By contrast with this classical approach, today there is a lot of consideration granted towards confort-kind satisfaction and towards the development of the indirect factors, as purpose and rationale of working. The banker can be motivated if there are known the personal needs, granting him possibility to satisfy them, at the same time with fulfilment of the bank's targets.

The relationship between manager-subordinate affects motivation. The motivation's factors which could increase the subjective value of working, taking into consideration situation and person's particularities, there are those non-monetary with big impact on people, as: the achievement, not being anything bigger motivator than the success; workplace communication, taking into consideration that there is a wide open communication regarding the work and its significance, the art of communication, based on respect on each-other and conflict avoidance, allows understanding between colleagues and good athmosphere creation for working within a bank; the manager attitude, the model role played in front of colleagues, the values and beliefs represent decisive element into the banking program; the talent and inteligence aquisition is an important target and if they are well oriented, could become extremelly efficient, essential conditions for technical and career development of a banker.

2.2. Motivation, vital factor which determine achieving performance-case study

Before presenting the research's results, there is necessary to indicate the dual purpose of the doctoral thesis:

- on the one side, starting from the assumption that Credit Europe Bank's employees find themselves into the average profile of the Romanian banker, to demonstrate this fact regarding motivation, emotional inteligence, opening, anticipation and energy necessary for implementing changes, team-working capacities, leadership capabilities;

- on the other side, starting from the idea that the competitional environment, working conditions are relative similar inside the Romanian banking system, differing the traditions and the financial power, the target is to establish the basement of the future scientifical researches for demonstrating that applying of that new managerial model, the balanced scorecard, could be succesful.

The central objective of the research is the project of conceiving and implementing of the balanced scorecard in Credit Europe Bank (Romania) SA, which could represent an important strategical management element inside a new qualitative development era, after seven years of quantitative explosion, from USD 100 million total assets in less than 20 branches with only 300 employees to the actual situation caracterized through USD 1,7 billion total assets, more than 1,200 employees and 82 branches.

On medium and long term, the ambition is to introduce this banking managerial model, if not generally available for all system, at least to the small and medium banks, having total assets between USD 100 million and USD 2 billion, representing less than 5% share of wallet.

The starting hypothesis in the research project was that the standards regarding human quality are similar inside all banks of the Romanian banking system and in this way, the study made on Credit Europe Bank (Romania) S.A. could represent a pilot project of changes which could take place in a relative short time period, around three to five years.

The reasearch was made at the level of an administrative unit, Prahova County, the county with the biggest number of inhabitans in Romania, in order to collect information from the same economical environment (Table 1). They were selected central branches of all four banks and a sample of 9 employees, representing the average number of employees/ branch (Figure 1):

Table 1

Commercial banks selected for research activity (source NBR)

Bank	Total assets 31.12.2007/ (vs. 31.12.2009)	
	Million lei	%
BCR	59,693.5/ (62,908.0)	23.8/ (19.1)
Alpha Bank	12,844.6/ (21,163.0)	5.1/ (6.4)
Piraeus Bank	5,995.5/ (6,900.0)	2.4/ (2.1)
Credit Europe Bank	4,465.7/ (5,679.6)	1.8/ (1.8)

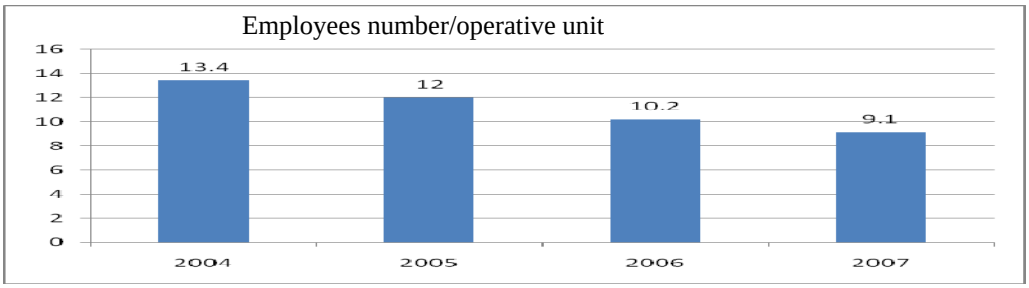

Figure 1. *Average number of employees working for a bank's branch (source NBR)*

Taking into consideration that the banks has tough rules and norms regarding human resources activities, generalized and uniforme at the level of every branch, it can be appreciated that the sampling allows obtaining relevant results. The sample included 36 bankers and represents 0.05% of total Romanian bankers.The research was made between August-October 2008, through interviews and questionnaires.

For illustrating the motivational elements inside the Romanian banking system I have made research using "Exercise regarding employee's motivation and participation related to their categories of needs" (Lefter, Diaconu, Marinaş, Puia, 2008, p. 196). Enclosed is presented a random excerpt, only to present the model and after that to briefly show the conclusions (Table 2).

Read all statements and circle the figure showing your opinion; e.g. if you completely agree, circle (Figure 3).

Table 2

"Exercise ...": The statement which are going to be analyzed

1. Salary's increases should be granted to the employees having outstanding working results.	+3 +2 +1 0 -1 -2 -3
2. In order that the bankers exactly know the expectations from their activity, should be created better job descriptions.	+3 +2 +1 0 -1 -2 -3
3. It should be reminded to the bankers that their work-places depends on the bank's capacity to face competition.	+3 +2 +1 0 -1 -2 -3
4. A manager should pay higher attention to the employee's physical working conditions.	+3 +2 +1 0 -1 -2 -3
5. A manager should make bigger efforts for creating a friendly working environment.	+3 +2 +1 0 -1 -2 -3
6. An individual recognition of the employees, exceeding the target, has "a great importance" for the employee.	+3 +2 +1 0 -1 -2 -3
7. A "laissez-faire" attitude of the manager could create frustration for the employees.	+3 +2 +1 0 -1 -2 -3
8. The employees like to find out that their skills and capabilities are fully utilized in banking activity.	+3 +2 +1 0 -1 -2 -3
9. Buying stocks in your own bank oftenly determine the employees to keep their working place.	+3 +2 +1 0 -1 -2 -3
10. Any job could be structured so that to be attractive and to be a permanent challenge.	+3 +2 +1 0 -1 -2 -3
11. Many bankers are ready to involve themselves, as much as posible, in banking activity.	+3 +2 +1 0 -1 -2 -3
12. The managers should pay more attention to the employees, organizing after-program social meetings.	+3 +2 +1 0 -1 -2 -3
13. Proudness given by well done job is an important reward.	+3 +2 +1 0 -1 -2 -3
14. The bankers like to consider themselves "the best" during their banking activity's time.	+3 +2 +1 0 -1 -2 -3
15. The quality of the social relationships inside working groups represents an important element.	+3 +2 +1 0 -1 -2 -3
16. Granting bonuses drive to better employee's performance.	+3 +2 +1 0 -1 -2 -3
17. It is important for the banker to know the superior management.	+3 +2 +1 0 -1 -2 -3
18. Generaly, the banker likes to make his timetable and to take decision regarding his work with minimum supervision.	+3 +2 +1 0 -1 -2 -3
19. The work places safety is an important element for employees.	+3 +2 +1 0 -1 -2 -3
20. An equipment and proper endowement represents important elements for the employees.	+3 +2 +1 0 -1 -2 -3

The centralizing results, without generalization's pretention, studying the sample provided by representative banks, indicate that basic needs as those psychological, self-esteem are already satisfied and since now there is preocupation for fulfilment of superior needs, related to the personal development, as justice, kindness, beautiness, unity, but the ratio of satisfying these needs are lower than 55%, out of basic needs fulfillment ratio (Figure 2).

This level can be modified through a corporative policy (introduction of social responsibility and environmental responsibility programs, etc), and also by encouraging the employees to aspire at superior education programs, volunteer's sessions, etc.

The hypothesis related to similar human resource quality's standards is confirmed by research results.

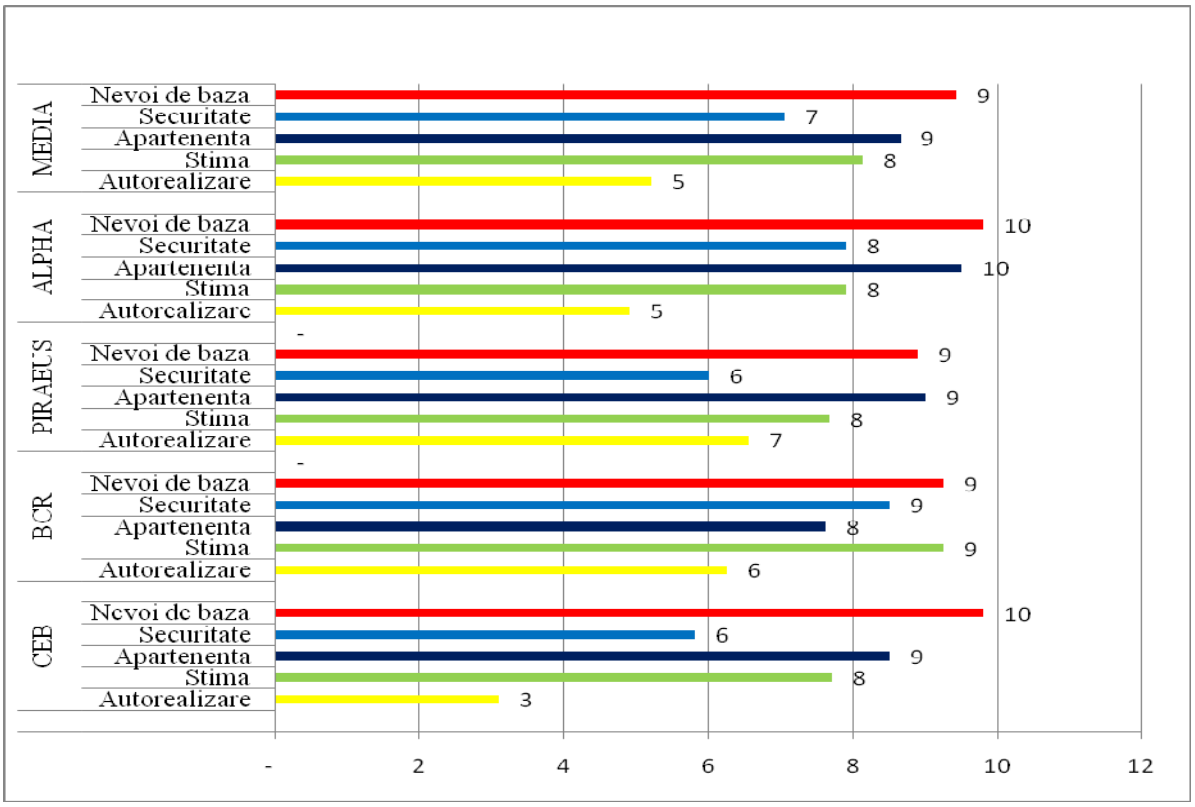

Figure 2. *Utilization's needs ratio*

A career motivational element is an inside force which determine what a person wishes and what is needed in a day-to-day activity. The motivational elements are sources of energy and drivers which became obvious in conditions of studying our daily activity forms. A motivational element is more than a tendency or predisposition; it is an interior imperative, powerful influencing the person. The smart persons hardly fight to express essential motivational factors. A motivational factor is not a superficial characteristic of a personality, but a fundamental component of a person identity.

The researches of career motivational elements have shown that many persons detains two or three major motivational elements and only 1 is essential; it is the motivational element "key of driving" career development and offer coherence to our choices and decisions, apparently without correlations.

The analisys of this study revealed 9 motivational elements, through the exercise "Measuring motivational factors-Richmond Career Drivers", created by Dave Frances („Manage your own career", 1984).

For offering an example, it is relevant the random sample extracted from the studied panel.

In the next pages there is a list of 36 statements describing wishes and needs of people related to their career. In order to identify the most powerful motivational elements, you should take into consideration the statements of every set, granting a total of three points to every set of two statements. For example, a possible allocation of points between the two statements could be:

A= 3 points	B= 0 points
A= 2 points	B= 1 point
A= 1 point	B= 2 points
A= 0 points	B= 3 points

Attention! Sometimes could be difficult to compare the two elements, but continue. The technique is based on this comparison and it proved efficient. Try to be onest and objective, there are not good and wrong answers, depends only on the personal preferences:

1. A.2... Only a high life standard gives me satisfaction.
   B.1... I wish having an important influence on others.
2. C.1... If my work results have value itself, I feel satisfied.
   D.2... I want to be an expert in my activity.
3. E.2... I want to use my creative skills in my work.
   F.1... It is very important for me to work with persons I like.
4. G.1... I would obtain special satisfaction utilizing the liberty of choice.
   H.2... I want having financial security.
5. I.2... I like the feeling produced by the fact that my opinion is respected.
   A.1...I want to be prosperous.
6. B.1... I wish having an important leader role.
   C.2... I make what is essential for me, even not having clear gains from that.
7. D.2... I want to feel I gained experience.
   E.1... I want to create things people would associate my name with.
8. F.0... I want powerful relationships with people from my field.
   G.3... I would be happy if I could decide how to spend my time.
9. A.0... I will not be happy without high revenues.
   D.3... I want to demonstrate I know my domain only for my personal satisfaction.
10. C.2... My work is a part of searching the life rationale.
    E.1... I want things I produce to bear my name.
11. A.3... I wish to allow myself doing anything I want.
    H.0... A long term and safe work-place sounds attractive for me.
12. B.1... I wish having a role offering enough influence on others.
    D.2... I would be happy to be specialist in my domain.
13. C.2... It is important that my work to bring a positive contribution to community.
    F.1... Close work-place relationships are important for me.
14. E.2... I wish utilizing maximum creativity.
    G.1... I would preffer to be my own master.
15. F.1... Close work-place relationships offer satisfactions to me.
    H.2... I want to know that I will be strong and ok, in the future.
16. A.1... I want to spend money easy.
    E.2... I want to be innovator in my work.
17. B.2... Onestly, I want to tell others what to do.
    F.1... It is important for me to be close to others.
18. C.2... My career is a part of searching the life rationale.
    G.1... I found out that I want to be responsible about my decissions.
19. D.3... I would be happy to be recognized as a specialist in my domain.
    H.0... I would be relaxed having a safe career.
20. A.3... I wish having elements of prosperity.
    F.0... I want to meet people in my job.
21. B.0... I like having roles so that to control the other's performance.
    G.3... It is important I can choose the task I should make.
22. C.3... I will dedicate myself to an activity if I consider that the result deserve this.
    H.0... I would feel comfortable if I know my statute on the retirement time.
23. F.0... Close work-place relationships make difficult the personal development.
    I.3... It is important for me to be recognized as a part of the bank.
24. B.0... I like to be in charge with resources and people.
    E.3... I want to create brand new things.
25. C.2... Drawing a line, I make what it is important for me, not only things appreciated for career promotion.
    I.1... I wish public recognition.
26. E.1... Iwant to make something different.

H.2... Usually, I choose the safe way.
27. B.0... I want to be considered a leader.
I.3.... Social statute is an important motivating element for me.
28. A.3... I am attracted by a high life standard.
G.0... I wish to avoid my manager close supervision.
29. E.2.. I wish my products to bear my name on them.
I.1... I wish formal recognition from others.
30. B.0... I preffer having responsibilities.
H.3... I become preocuppied when I cannot predict my career stages.
31. D.3... I like to be the person having important profesional knowledge.
G.0... I would be satisfied not to be subordinated to others.
32. G.1... I dislike not to be a representative person in a long chain.
I.2... I like having a high statute job.
33. A.1... I am prepared to make big efforts for material reward.
C.2... I consider the work a way towards personal development.
34. I.1... I want a high executive position in any company I work for.
H.2... A safe future attract me anytime.
35. F.0... When I have pleasant relationships, the rest is without importance.
D.3... Possibility to bring contribution as expert provides me satisfaction.
36. I.1... I like the statute's symbols coming along with top executive positions.
D.2... I aspire to a statute offered by the specialist recognition.

Calculation: add al points offered to any statement and total should be 108.

Motivating Element	A	+	B	+	C	+	D	+	E	+	F	+	G	+	H	+	I	=	108
Score	14	+	5	+	16	+	20	+	15	+	4	+	9	+	11	+	14	=	108

The 9 career's motivating emenents are: A. Material rewards (He is interested in wellfare and high life standards); B. Power/influence (He is interested to control people and resources); C. Rationale searching (He is interested to make things considered valuable for himself); D. Expert/status (He is interested in achieving self-fulfilment sentiment into the banking field); E. Creativity (He is interested in innovation); F. Affiliation (He is interested in achieving beneficial relationships at the work-place); G. Autonomy (He is interested to be independent and to take important decission); H. Security (He is interested in a solid and predictible future); I. Status (He is interested in being admired and appreciated by the entire community).

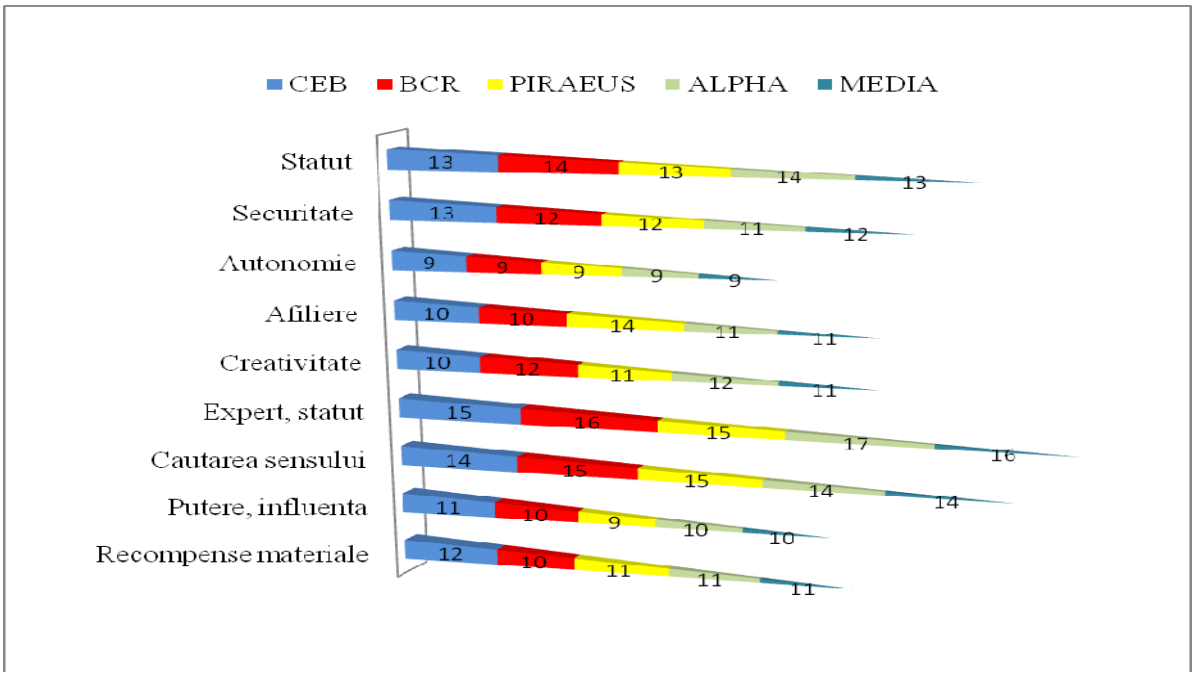

Figure 3. *The motivational elements graph*

As we can observe from Figure 3, the Romanian banker is included in the category D: Expert/ Status, being interested by a high self-fulfilment sentiment into the banking field; this is the essential career motivational element.

The second motivational element is that of searching the rationale, C category; he is interested to make those things considered valuable for him.

It is necessary to mention that the entire sample registers similar values for the essential and the second motivational elements, regardless the bank's dimension

Conclusions

This study is only an excerpt from a deep research regarding Romanian banking worker and the results are encouraging.

I demonstrated that hypotesys is pertinent, that the basic needs are already satisfied and since now there is preocupation for fulfilment of superior needs; also, another target was that of discovering the main motivational element into the banker career and I found that there is the interest for professional self- fulfillment into the banking field.

According to the objectives assumed in such an enterprise, I consider only a small first step in researching banking field in Romania, being such a vast and promising domain.

Acknowledgements

This paper is part of the project ″Management of change and human performance in the banking system″ at the University of Craiova, Faculty of Economic and Business Administration. I express gratitude to my professor, Mr. Tudor Nistorescu – Ph.D.

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THE ROLE AND THE IMPLICATIONS OF RETAIL PAYMENT INNOVATIONS FOR THE EUROPEAN BANKING SYSTEM

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Abstract. *The retail payment services represent a key component of any European commercial bank operations, alongside other components like savings and deposits, consumer credit loans and mortgages. Taking into account the recent turmoil that has characterised the financial landscape of the European Union, it becomes interesting to investigate the role and the implications that the development and the modernization of retail payments has on the European banking system. The aim of this paper is to better understand current developments in European retail payment services by using a literature review in order to establish the current state of the researches undertaken in this field and to identify possible future trends regarding the innovation and development of these services using an empirical analysis.*

Keywords: innovation; integration; retail banking; retail payments; European banking system.

JEL Codes: D12, E58, F36, G20, L11.
REL Codes: 3D, 10I, 11C, 14K, 20B, 20E.

1. Introduction

It is widely recognised that efficient and safe retail payment services are exponentially contributing to the raise of the efficiency of the financial sector, enhancing clients' confidence and enabling the development of pan-European commerce. In a conceptual approach, retail payment systems are seen as the second face of the market (Rochet, Tirole, 2006). Basically, every economical transaction in a modern economy implies the usage of financial instruments, either if we speak about checks or electronic funds transfers (Berger et al., 1996). The European retail payment systems, which have been characterised by a high degree of fragmentation in the past, have undergone through a series of changes in the last decade in regard to the legislative framework, the consolidation of this type of services, while also becoming more developed and innovative. As a result of these transformations the current retail payment services offered by European banks are different from the ones provided 30 years ago.

Taking into consideration these perspectives, the aim of these papers is to underline the general trends in the European retail payment services, while emphasizing the importance of these types of services for the European banks business model. In order to achieve this, the paper is structured in four parts. Thus, the first part, is dedicated, as we have presented, to introduction remarks, while the second one is focused on a literature review of the studies that have researched the field of European retail payment services, emphasising on the one hand the way in which this problem was approached, the methodology used and also the limits of these studies, in order to be able to familiarise us with the existent analyses and with the methodology used and thus to avoid an overlaying research, and on the other hand underlining the way in which our research will ensure the covering of the areas that weren't approached yet by these studies. Afterwards, the third part is underling the importance of these types of services for banks profitability and the importance of payment services innovation for the

development of consumer finances, while section four contains the concluding remarks regarding the future trends of the European retail banking system in general and of the retail payments market in particular.

2. The role of retail payments services in a European bank business model – a literature review

The financial and economic crisis which characterise the current economical environment is likely to revive the European banks interest for the retail payment services. This is knee to happen as, even if revenue sources for European banks tend to become more volatile as a result of the economic-financial turmoil, the revenues generated by the payment services tend to remain reliable and regular despite the current context. In another train of thoughts, European banks need to understand that their business model, despite being focused at the moment on counteracting the effects of the economical and financial crisis, needs to be able to be efficiently shifted so it could cope with the core task that they need to provide in "normal times". Thus, the return of banks to the "normal times" business model does not necessary mean the return to the pre-crisis way of doing business, as we consider more opportune to them to change their business model and focus more on their public role, that of offering innovative and efficient payment services at a pan-European level, as well as providing current accounts and loans to business and persons.

In this perspective it becomes interesting and opportune for policy makers, regulatory bodies, expert practitioners and academic experts alike to deepen the researches and thus to better underline the attractiveness that payment services might have for European banks future business models. The current academic literature, which pioneers the research of this field, provides separated development perspectives for the payment services on the one hand and the retail banking activity on the other. Thus, regarding this approach there are several studies which are underling the benefits and potential of the SEPA project (Schmiedel, 2007, Kemppainen, 2008, Capgemini and European Commission, 2008). Also, at the microeconomic level there are a series of studies which are stressing out the importance of payment services innovation for the development of consumer finances and consumer's spending patterns (Campbell, Jerez, Tufano, 2009, Iftekhar, 2009, Lusardi and Tufano, 2009, Scholnick, 2009).

Other studies, like the ones undertaken by DeYoung et Rice, 2004 or DeYoung, 2005 are underling the importance for banks to develop internet base products and services which will generate non-rates revenues, in order to have a sustainable business model. Unfortunately, none of these studies researches the connection between the development and implementation of such retail payment solutions and banks profitability.

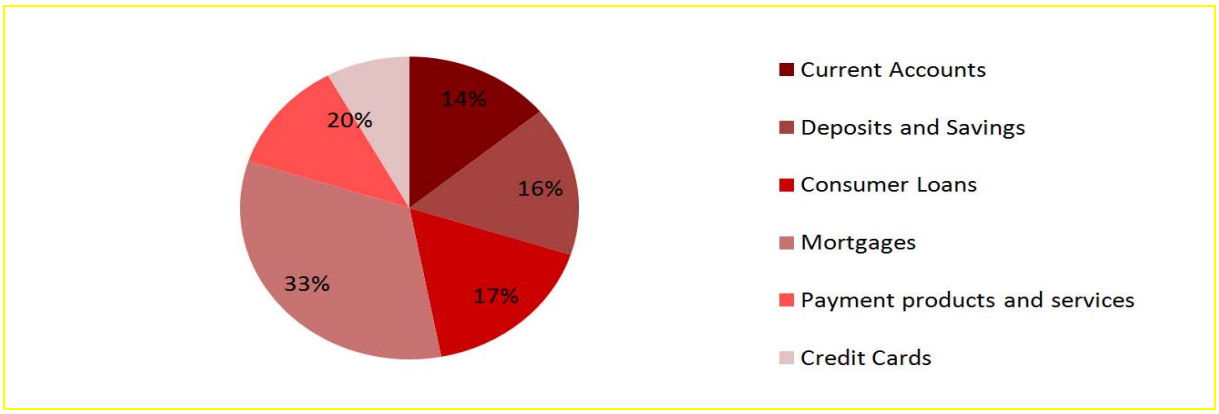
The number of empirical studies which underline the importance and influence of retail payments services for European banks profitability are very scarce (this fact being underlined by Kahn and Roberts, 2009), which leads to the inexistence of a methodology that could be used for studding these aspects.

Taken these aspects into consideration our study focuses on the importance that retail payment services are having on European banks profitability, using a series of empirical data in order to underline this. Also, we are providing a series of arguments in favour of a change in the way banks approach their retail businesses in general and especially the retail payment services, by developing and implementing a series of financial innovations which will secure their revenues at risk.

3. The importance of innovating retail payments for European banks' profitability

Retail payments have a significant impact on the profitability of European banks. Thus, in general, retail banking revenues are generated by: current accounts, deposits and savings, consumer loans, mortgages and payment products. From these components, payment

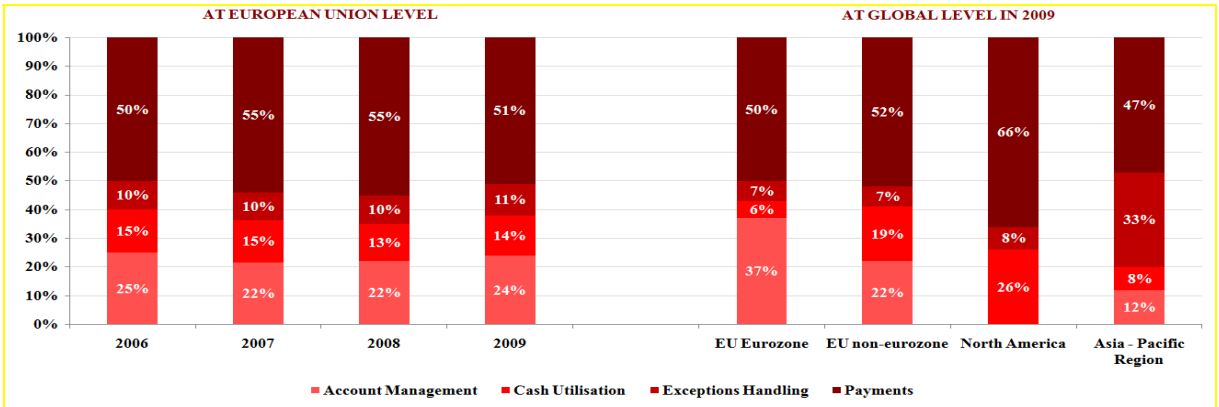
products revenues represent about 20% of the average gross income generated by the consumer product line in European Union – 15. The most important component of the payment products is represented by the credit cards, which are generating 8% of the European Union – 15 banks average retail gross income.



Source: authors own calculation based on European Central Bank data.

Figure 1. *Average gross revenue by consumer product line in EU -15 countries*

In another train of thoughts, payment fees represent more than 50% of the core banking fees which are charged by European banks to their clients. If we make a time series analysis we can observe that this percentage is constant above 50% between 2006 and 2009, despite the international financial turmoil which has started in 2007. Then, if we take into consideration the whole world we can see clearly that North American banks are gaining the most of the core banking fees from payment services with 66%, followed by the European non-euro zone banks with a 52% and European euro zone banks with 50%, while in the Asia-Pacific region these fees represent only approximately 47% of the total core banking fees. We can argue that these differences are the result of a more fragmented retail payment infrastructure in Europe and the Asia-Pacific region, when compared with North America.



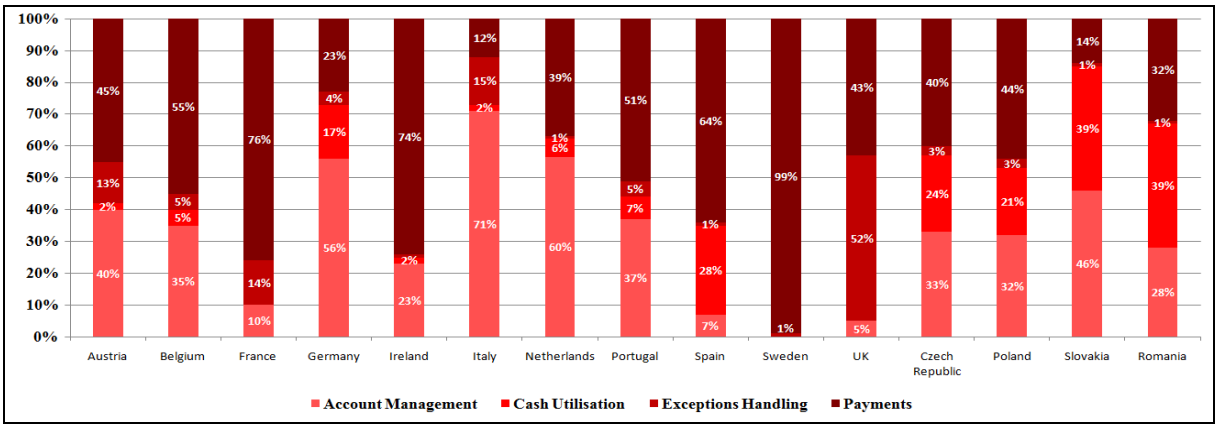
Source: authors own calculation based on European Central Bank and International Monetary Fund data.

Figure 2. *Fee sources for core retail banking services at European and global level*

Alongside their important share, a great advantage presented by the retail payment revenues is their stable character over time when compared with the other sources of a bank income. Moreover, the retail payment services represent the basic tool that a bank uses in establishing long term relationships with retail customers.

Despite the 50% average that payment fees represent in the core banking fees at European Union level, there are big differences between member countries. These differences

tend to manifest especially between the more developed financial countries from EU-15 and the new member states, as we have illustrated below.

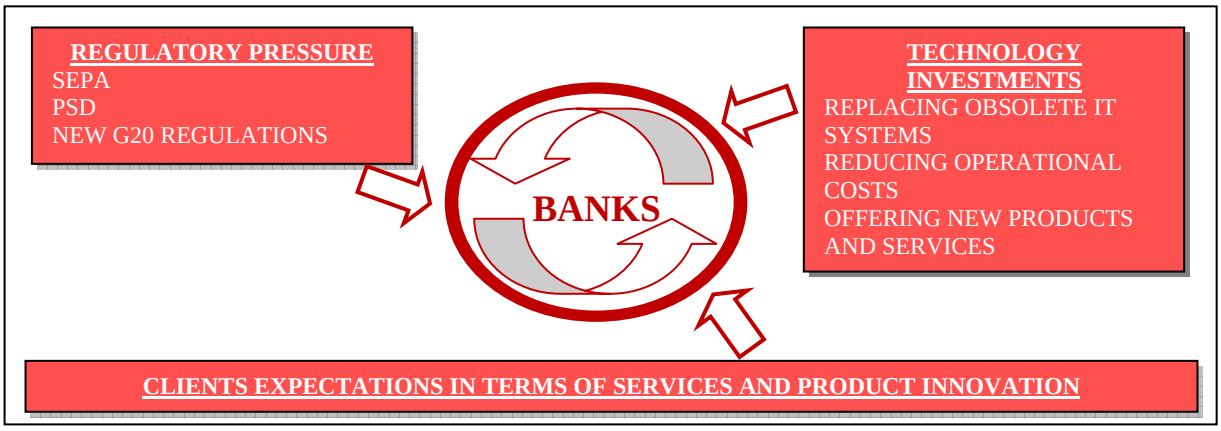


Source: authors own calculation based on European Central Bank data.

Figure 3. *The dynamics of the core retail banking fees in some EU member countries*

In regard to the differences between the developed countries and the new member states from the European Union, there is a relatively wide body of academic literature that underlines the relationship that exist between banks performances and the development of the retail payment infrastructure in a specific country. These studies argue that in the countries that have implemented a developed and modern retail payment system the performance of their banks is higher.

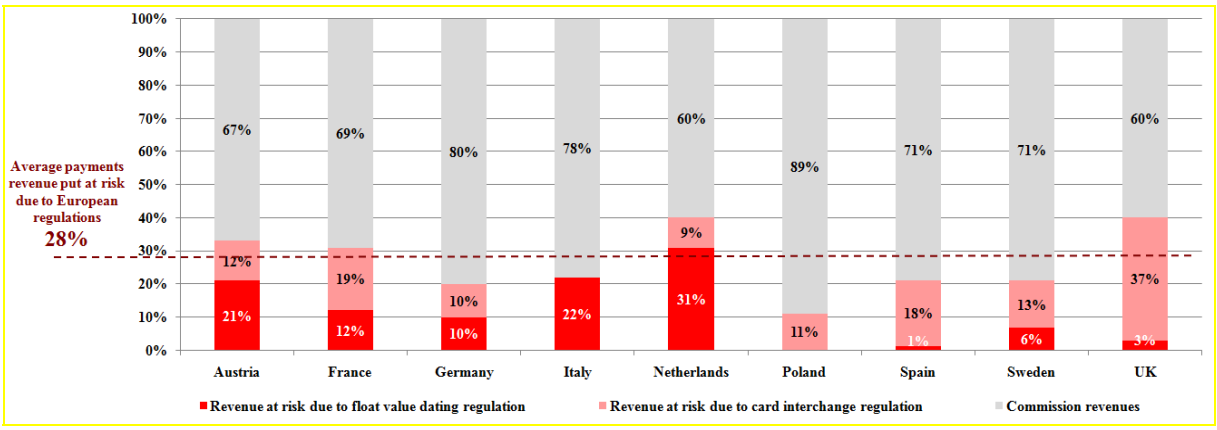
Despite these, nowadays banks retail payment revenues are under a lot of pressure, which is generated by the deepening of the European banking integration process (that provides an enhancement in competition and requires additional investment by the banks to conserve their market share), the policies implemented by the European and national competition authorities (e.g. which have lower the interchange fees) and nevertheless by the changing of customer needs and behaviour in terms of services and product innovation.



Source: authors own simulation.

Figure 4. *The main factor that determine banks to innovate their retail payment systems*

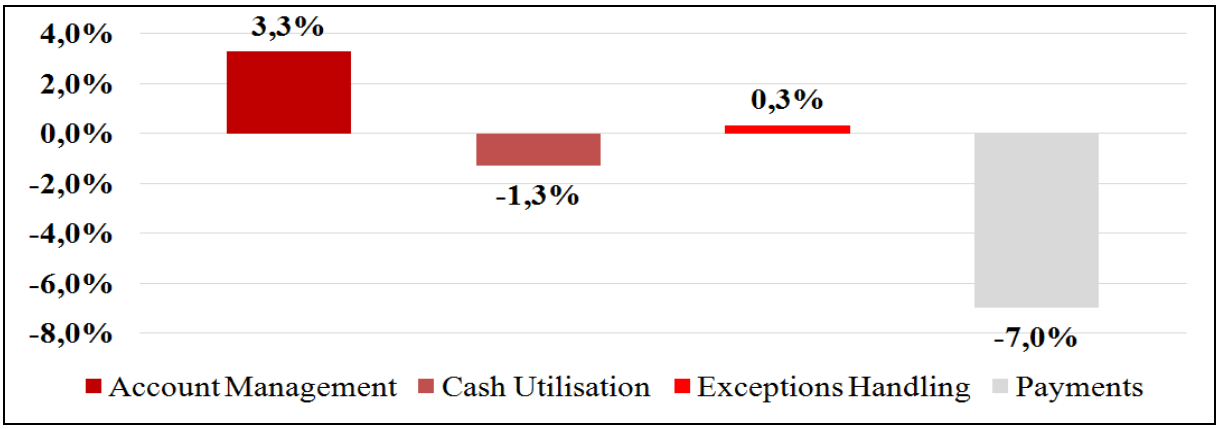
For example, the European Central Bank has calculated that, as a result of the deepening of the European banking integration process, the pressure put on banks by European regulations and enhanced competition could determine a loss of approximately 28% of the total revenues generated by the payment services.



Source: authors own calculation based on European Central Bank data.

Figure 5. *Impact of the European regulatory changes on the banks payment systems revenues*

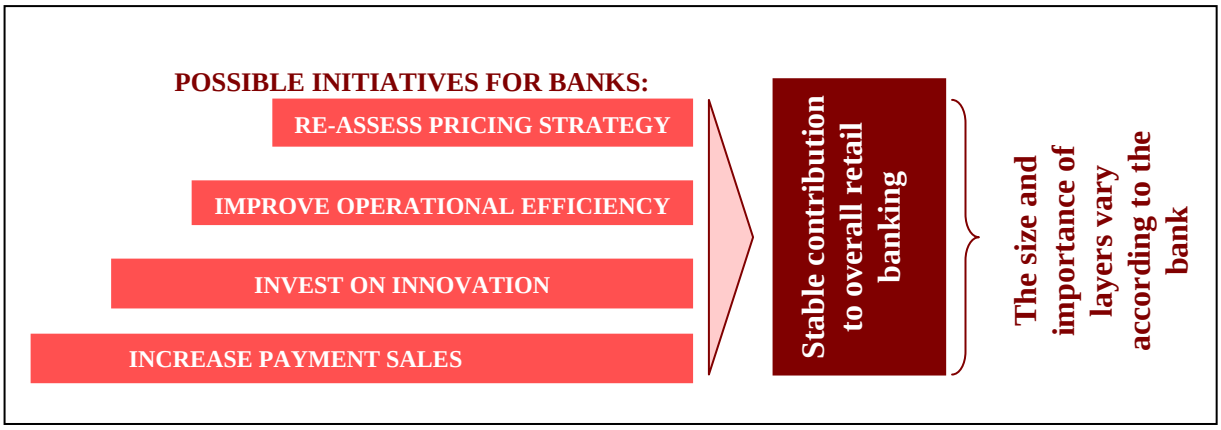
In order to counteract such a development, banks must revise their research and development policies, trying to invest and implement more cost efficient payment solution and compensate the lost in pricing of the payment services that they provide by an increase in the volume of payments that they process. These measures need to be taken very rapidly by the European banks as the price of payment services is sharply dropping, as we can observe from the graphic below, which underlines the variation of the main banking fees at European Union level, between 2008 and 2009.



Source: authors own calculation based on European Central Bank data.

Figure 6. *The variation of prices for retail services between 2008 and 2009 in the EU*

Also, in order for payment services revenues to remain a main component of the banks revenues, the business model adopted by these institutions must undergo a radical change. This change in the operational model of banking institutions must represent a combination of actions that will improve the retail payment revenues. Thus, actions undertaken in order to innovate payment services must be combined with new pricing policies which will heavily depend on the diminishing of operational cost and the increase of payment volumes.



Source: authors own simulation.

Figure 7. *Major changes that must be undertaken by European bank in order to conserve their payment revenues*

It turns out that there are member countries of the European Union in which because of the poor payment infrastructure development, the banks are not able to combine all the measures previously presented in order to protect this type of revenues. Because of this, in these countries a crucial role is attributed to the development and implementation of financial innovations, noticing that banks which have a more proactive approach can gain more opportunities and better anticipate future transformations, which enable them to better protect their revenues at risk.

Although, if we are focusing on the retail payment business of a bank, we can argue that the implementation and usage on large scale of technological innovations for payments, such as mobile phones, chip technologies or the internet, is still lagging behind.

Therefore, it turns out that in order to be able to use financial innovation in the payment systems in a successful way there is a need for a legal framework which is not hindering the development of innovation, the existence of a strong cooperation among the different sectors which are involved in this process, the ability of banks to understand the market characteristics and wider social trends, and nevertheless the ability to implement new payment services in the already existing payment value chain.

Moreover, for payment innovations to be rapidly and widely accepted and used there is the need for all stakeholders (like older persons groups or SMEs) to be involved in the process of creation and implementation of these revolutionary solutions. A good example for the need of stakeholder implication is represented by the development of new methods for on-line payments, which despite being developed by banks because they are demand driven, do not take into account the specific needs of all the stakeholders, which leads to the incomplete replacement of the classic payment methods by the new ones.

Nevertheless, we must underline the fact that most corporations and retailers greatly emphasise the importance of safety and security in their perchance of new payment services, choosing, based on these characteristics, the banks rather than the non-banks to handle their payment needs. Another great factor in their chasing is represented by the speed with which the payments are processed, and in regard to per transaction costs, despite being one of the most important component of economic business plans of any corporation or retailer, they represent the last characteristic which is taken into consideration when choosing a new payment service (European Central Bank, 2010).

In conclusion, we can anticipate that in the next period the European payment services will undergo through a series of profound changes as a result of the development of new business models, which are based on an equilibrium between interest rates revenues and services fees and are focused on an efficient implementation of financial innovations in the banking practice.

4. Final remarks regarding the future of European retail banking and the retail payments market

If we take into consideration the changes that have occurred recently in the European retail payment services, it becomes obvious that in regard to cross-border person to person transactions, the role of non-banks intermediaries is raising. In this regard it is expected that the IT&C industry will take a ever greater role in regards to money transfer and low value payments, through the usage of mobile devices (such as mobile phones, netbooks and tablets), especially in the European countries where "traditional" payment systems are less developed and the number of unbanked or under banked persons is higher in comparison with the number of mobile communication devices users.

In another train of thoughts, the cooperation between banks and non-banks regarding the development of new payment methods and services on the basis of existing infrastructures is essential, in order to achieve a good level of profitability and gain economies of scale.

Moreover, these changes are having a direct effect on the increasing pressure put on the regulatory framework, as more non-bank intermediaries are entering the market of retail payment services. In this context, national central banks and the European Central Bank must take these changes into account and prepare for the new landscape, while maintaining a balance between the supervision and regulation of these new retail payment services on the one hand and the stimulation of competition on the other hand.

These actions of preparation of the national central banks and the European Central Bank become more urgent as the financial integration process is deepening and it enhances several risks like: the systemic risk, as a result of wider payment operations at European level undertaken by banks, the manifestation of new risks derived from the creation of new interdependencies as a direct result of increased interoperability and nevertheless the associated risk to new payment solutions (like e-payments or card payments).

As we have showed, the European retail payment services have withstood well the financial and economic turmoil of the last years, proving to be a reliable source for revenues for the European banking system. Still, European banks have become more reluctant in regard to their pan-European operations, this trend being manifested also in regard to retail payment services, although these effects will be only temporary. Despite these evolutions, the development and innovation of the retail payment services provided by the European banks will be the determined trend in the short and medium term as a result of the changing communication technologies, of the ever increasing cross-border activities between European Union member countries and nevertheless because of the lowering of costs in regard to the implementation of innovative solutions in the financial sector.

Acknowledgements

We hereby acknowledge the support of the "Alexandru Ioan Cuza" University of Iasi, in the development of this article through the grant POSDRU/88/1.5/S/47646, entitled "Studii doctorale: portal spre o carieră de excelență în cercetare şi societatea cunoașterii", co-financed through the European Social Fund, within the Sector Operational Programme Human Resources Development 2007-2013.

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RISK-BASED OPTIMIZATION OF A PORTFOLIO. APPLICATION IN CASE OF STOCKS LISTED ON THE BUCHAREST STOCK EXCHANGE

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Abstract. *This paper is dedicated to the conceptual and methodologic development of the optimization for asset portofolio and we attack the problem in three stages: selecting assets, risk estimation, solving the optimization problem. We select assets in the portfolio using principal components analysis in order to construct the initial portfolio. Then we select from each of the classes obtained those assets that correspond to the minimum measure Value-at-Risk at a fixed probability level. Originality of our study consists of a combination of classification theory, of estimating the risk and optimization techniques. To illustrate our developped method we consider the case of an equity portfolio at the Bucharest Stock Exchange.*

Keywords: risk; selection of assets; principal components analysis; estimation; optimization.

JEL Codes: C02, C61, G11.
REL Codes:10J,11B, 20H.

1. Introduction

Financial assets portfolio optimization is an important area, which developed the theory of Markowitz's mean-variation and the expected utility theory. Mean-dispersion theory has some limitations and can be applied successfully only if the expected returns of financial securities are normally distributed random variables. However, the literature contradicts the hypothesis of normality for the expected returns and it is a strong argument against the use of the mean-variation techniques, which is why they introduced new measures of risk. Value-at-Risk (VaR) is a measure of risk, which plays an important role in investment, risk management and regulatory control of financial institutions. Basel II has incorporated the concept of VaR, and encourages banks to use VaR for the daily risk management. Since in most cases the distribution of random variable risk is not known, a method of evaluation or estimation of VaR is required. The idea to obtain clusters that characterize a set of assets can be found also in Kaski et al., 2009, Stefanescu et al., 2008, pp.109-122, Mantegna, 1999. Methodology based on clustering techniques is a useful tool for understanding and detecting the structure and the hierarchy in the financial data. These methods were successfully applied to analyze the stock markets and exchange. Brida and Risso (2007a, 2007b) applied clustering techniques to classify the stocks of Milan and Frankfurt stock exchanges using the Pearson correlation coefficient. This study is dedicated to solve the problem of optimal portfolio consisting of risky shares and it aims to maximize expected return in terms of risk taking in the market risk measured by BET.

We propose solving the problem in three stages: selecting assets, risk estimation and portfolio optimization. The selection of assets is realized by applying principal components analysis in order to discover similarities between the assets under consideration. We use PCA to reduce the number of features of assets to be taken into account for each asset.

In the second stage, we will present an approach to estimating risk using historical simulation method. Third stage focuses on the determination of both low-risk assets in each class and the optimal portfolio construction. At the end we solve a case study for stocks listed on the Bucharest Stock Exchange.

2. Stage of selection of assets

In the context of nowadays financial markets it is a huge amount of available financial data. It is therefore very difficult to make use of such an amount of information and to find basic patterns, relationships or trends in data. We apply data analysis techniques in order to discover information relevant to financial data, which will be useful during the selection of assets and decision making. Consider that we have collected information on a number S of assets, each with P features, which represent various financial ratios, still called variables. Denote by y_i^j the j-th variable for action i. Multivariate data set will be represented by a matrix $Y = \left(y_i^j\right)_{\substack{i=\overline{1,S} \\ j=\overline{1,P}}}$ and can be viewed as a set of S points in a P-dimensional space. Principal components analysis (PCA) is a useful technique for analyzing data to find patterns of data in a large-scale data space. PCA involves a mathematical procedure that transforms P variables, usually correlated in a number of $p \le P$ uncorrelated variables called principal components. After applying the PCA, each asset *i* will be characterized by *p* variables, represented by a set of parameters $y_i^1, y_i^2, ..., y_i^p$ therefore, it is possible to form the arrays $Y_i = \left(y_i^1, y_i^2, ..., y_i^p\right)$, $i = \overline{1,S}$, which correspond to a set of S assets. Suppose now that we obtained a data set $Y_i = \left(y_i^1, y_i^2, ..., y_i^p\right)$, $i = \overline{1,S}$. We then use clustering techniques in order to find similarities and differences between the actions under consideration. The idea of clustering is an assignment of the vectors $Y_1, Y_2, ..., Y_S$ in T classes $C_1, C_2, ..., C_T$. Once completed the selection of activities, we construct the initial portfolio by selecting low-risk asset in each class.

3. Phase estimation risk

We evaluate the performance of an asset using expected future income, an indicator widely used in financial analysis. Denote by $S_j(t)$ the closing price for an asset j at time t. Expected future income attached to the time horizon $[t, t+1]$ is given by: $R_j(t) = \ln S_j(t+1) - \ln S_j(t),\ j \in \overline{1,S}.$

Similary, we define the loss random variable, the variable L_j, for asset j for $[t, t+1]$ as : $L_j(t) = -R_j(t) = \ln S_j(t) - \ln S_j(t+1),\ j \in \overline{1,S}.$ Using Rockafellar et al., 2000, define the risk measure VaR corresponding loss random variable L_j. Probability of L_j not to exceed a threshold $z \in R$ is $G_{L_j}(z) = P\left(L_j \le z\right)$..

Value at risk of loss random variable L_j associated with the value of asset j income and corresponding probability level $\alpha \in (0,1)$ is: $\mathrm{VaR}_\alpha\left(\mathrm{L_j}\right) = \min\left\{z \in \mathrm{R} \middle| \mathrm{G_{L_j}}(z) \ge 1-\alpha\right\}$ or P (X > VaR) = α. If G_{L_j} is strictly increasing and continuous, $VaR_\alpha\left(L_j\right)$ is the unique solution of equation $G_{L_j}(z) = 1-\alpha$ then $VaR_\alpha\left(L_j\right) = G_{L_j}^{-1}(1-\alpha).$

One of the most frequently used mehods for estimating the risk is the *historical simulation method.* This risk assessment method is useful if empirical evidence indicates that the random variables in question may not be well approximated by normal distribution or if

we are not able to make assumptions on the distribution. Historical simulation method calculates the value of a hypothetical changes in the current portfolio, according to historical changes in risk factors. The great advantage of this method is that it makes no assumption of probability distribution, using the empirical distribution obtained from analysis of past data. Disadvantage of this method is that it predicts the future development based on historical data, which could lead to inaccurate estimates if the trend of the past no longer corresponds. If L_j is the loss random variable and $\hat{G}_n$ is empirical distribution function of L_j and $\alpha \in (0,1)$ a fixed level of probability,then $\hat{G}_n(z) = \frac{1}{n}\sum_{i=1}^{n} I_{\{L_j \le z\}}$ .We can prove that $\mathrm{VaR}(\mathrm{L_j}) = \min\left\{ \mathrm{z} \in \mathrm{R} \,|\, \frac{1}{\mathrm{n}} \sum_{\mathrm{i=1}}^{\mathrm{n}} \mathrm{I}_{\{\mathrm{L_j^i} \le \mathrm{z}\}} \ge 1-\alpha \right\}$.

4. Optimization portfolio phase

Once completed the phase of grouping the assets in T classes by the existing similarities, we focus on the selection of the assetsş of each class to have a minimal risk. Consider the loss random variable corresponding to each asset in each obtained class C_i, $i = \overline{1,T}$: $\min_k VaR\, L(A_k^i)$. We obtain an initial portfolio comprising a wide range of actions with minimal risk. We will try to determine what percentage is the optimal composition of capital that needs to be invested in each of the assets under consideration, so that at the end of the investment we have a maximum return on investment. Thus, T is a set of actions, with action j that leads to expected income R_j, $j = \overline{1,T}$; expected income of portfolio is $\mathrm{R_x} = \sum_{\mathrm{j=1}}^{\mathrm{T}} \mathrm{x_j} \times \mathrm{R_j}$. The model to be solved is : $\max \sum_{\mathrm{j=1}}^{\mathrm{T}} \mathrm{x_j} \times \mathrm{R_j}$, with $VaR_\alpha(L_x) \le \nu_0$, where ν_0 is the model parameter.

5. Application of optimization of a portfolio of stocks listed on BVB

5.1. Financial ratios used in the actions evaluation

Evaluation of the actions will be performed, as usual, using two specific methods of financial analysis: fundamental analysis and technical analysis.

Fundamental analysis attempts to determine a value closer to the reality of actions based on information on the company's financial situation, the area in which they operate, investments, property etc. The purpose of this analysis is to select those actions which, at the time, the market price is lower than the value of the outcome of the analysis, thus creating the premises for future market to recognize the value and price to rise.

This means that fundamental analysis attempts to predict the direction of share price development of medium and long term from past and present achievements of the company and to estimate its future. So fundamental analysis relies on a direct cause-effect relationship between the economic value of a stock and its market price developments. *Technical analysis* studies the evolution of the trading price, it assumes that all relevant information to the market is already included in price, except for natural disasters such shock events, etc. Investor psychology is captured very well to technical analysis. Depending on access to information, the time for analysis and investment strategy chosen, each investor chooses the type of analysis that fits better. Thus speculators go long on technical analysis, long-term investors go on fundamental analysis. Ideally the two should be

used together to confirm the purchase or sale signals that they offer. We will present some of the most important financial indicators that we will use in our study.
- *PER indicator (net income per share)* is calculated by dividing the current market price to the value of net profit per share for the past four consecutive quarters, net income per share is calculated by dividing the total net profit earned by the company during the reporting period (it is relevant to relate to the last 12 months) the number of shares issued and outstanding.
- *The P/BV (book value of shares)* is calculated by dividing the current trading price to book value per share determined according to the latest financial reporting, accounting value of a share is calculated by dividing the total equity value of the company to the total of it shares issued and outstanding; equity value is determined by deducting total liabilities from total assets owned company and is "shareholder wealth", which is what remains to be recovered if the assets and liabilities would be paid.

- *The ratio of value traded in last 52 weeks and market capitalization*, the report shows the liquidity action

- *Evolution of price*: to observe the price level at a given time we take into acount the maximum price and minimum price achieved in the last six months

- *Divy index* measures the performance of dividend and is calculated as the ratio between the amount of the dividend and book value or market value of the action. Divy index assesses the efficiency of investment in an asset.

We used information on a total of 71 shares representing shares of Class I and II, traded on the Bucharest Stock Exchange. We selected only the actions characterized by a high value of the coefficient of volatility and we obtained a smaller set of 48 stocks. Then we considered only the actions for which it is possible to calculate all the indicators mentioned resulting in 39 stocks. The aim of our study is to find similarities and differences between the current analysis and build a diversified portfolio. Since the Bucharest Stock Exchange is not mature enough, we can not afford to use a single financial index, such as, for example, the closing price. So we take into account several characteristics for each asset, we use data analysis techniques in order to process this vast amount of information. We consider the values of the seven financial indices for each asset. Table 1 lists, for each of the 39 stocks analyzed, the values of the six features; we used the data available on the Bucharest Stock Exchange on 30 November 2010.

Table 1

The value of the seven features

No	Simbol	P/BV	PER	DIVY	Min/ P	Max/P	TrV/Cap
1	ALR	1.39	16.61	6.70	0.89	1.41	0.005
2	ALT	0.31	13.26	0.00	0.86	1.43	0.38
3	ALU	0.72	26.88	5.44	0.73	1.9	0.12
4	ARS	1.52	11.79	6.94	0.71	1.16	0.05
5	ATB	1.04	14.63	3.00	0.95	1.27	0.1
6	AZO	0.62	2.68	0.00	0.87	1.17	0.21
7	BCM	0.37	18.51	7.83	0.71	1	0.09
8	BIO	1.55	10.63	0.00	0.83	1	0.4
9	BRD	1.77	14.1	2.33	0.87	1.15	0.07
10	BRK	0.84	13.8	0.00	0.86	1.26	1.09
11	BRM	0.62	6.17	9.09	0.78	1.5	0.11
12	BVB	3.06	27.4	2.84	0.79	1.11	0.39
13	CEON	0.41	26.66	0.00	0.80	1.25	0.4
14	CGC	0.22	117.8	0.00	1	1.8	0.06
15	CMP	0.34	14.1	0.00	0.88	1.04	0.13
16	COMI	0.97	12.82	0.00	1	1.95	0.97

No	Simbol	P/BV	PER	DIVY	Min/ P	Max/P	TrV/Cap
17	DAFR	0.71	16.86	0.00	0.89	1.16	0.76
18	EFO	0.08	6.18	0.00	0.93	1. 2	0.08
19	ELJ	0.32	2.28	0.07	0.68	1.17	0.009
20	OIL	0.86	41.39	0.26	0.72	1.1	0.1
21	PREH	0.44	46.65	4.86	0.97	1.66	0.04
22	PTR	0.77	6.66	4.92	1	1.91	0.41
23	RMAH	0.84	7.04	1.48	0.85	1.37	0.05
24	SCD	1.40	7.67	0.00	0.73	1.01	0.07
25	SIF1	1.08	12.31	5.1	0.98	1.17	0.55
26	SIF2	1.16	5.97	5.88	0.95	1.24	1.21
27	SIF3	0.85	22.71	5.88	0.91	1.45	0.6
28	SIF4	0.35	7.19	6.78	0.92	1.3	0.4
29	SIF5	1.12	11.62	12.8	0.9	1.40	1.68
30	SNO	0.49	26.12	10	1	1.55	0.08
31	SNP	1.32	8.95	0.00	0.77	1.02	0.01
32	SOCP	1.08	57.68	0.00	0.57	1.26	0.38
33	SPCU	0.60	128	3.19	1	1.16	0.2
34	SRT	0.15	16.74	0.00	1	2.19	0.35
35	TGN	1.30	7.82	4.98	0.79	1.02	0.05
36	TLV	0.87	20.2	2.97	0.99	1.67	0.3
37	TRP	0.86	20.08	0.00	1	1.32	0.17
38	TUFE	0.48	32.55	0.00	1	1.1	0.03
39	VNC	0.70	17.77	0.00	0.98	1.08	0.07

2. Principal components analysis

We apply data analysis techniques to discover the similarities and differences between the stocks of the Bucharest Stock Exchange, using the package StatistiXL 1.8.

Figure 1 contains the tree resulted from PCA (dendrogram). Dendrogram usually begins with all assets as separate groups and shows a combination of mergers to a single root. Stocks belonging to the same cluster are similar in terms of features taken into account. In order to build a diversified portfolio, we first choose the number of clusters, which will be taken into account. We will then choose a stock from each group and we get the initial portfolio.

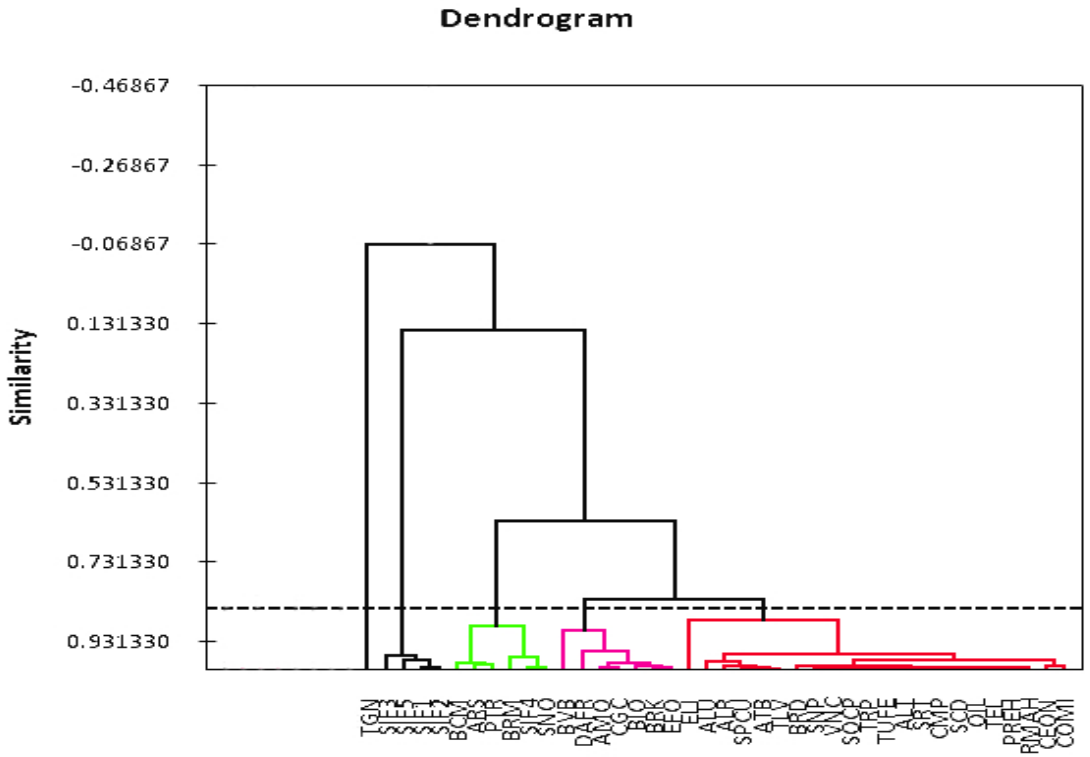

Figure 1. *Group shares*

5.3. Portfolio optimization

We used the closing price values daily for each share, corresponding to a time horizon of 50 days to measure VaR for each stock. We used the data available on the Bucharest Stock Exchange from 15 June 2010-30 July 2010. The following tables contain values of VaR for each stock and three levels of probability values

Table 2

VaR for each stock

Class 1	0.90	0.95	0.99
ALR	0.0139	0.0171	0.0519
ALT	0.0290	0.0371	0.0653
ALU	0.0236	0.0317	0.0529
ATB	0.0221	0.0293	0.0330
BRD	0.0195	0.0231	0.0361
CEON	0.0287	0.0455	0.0995
CMP	0.0228	0.0422	0.0701
COMI	0.0282	0.0313	0.0420
ELJ	0.0531	0.0742	0.0969
PREH	0.0568	0.0807	0.1476
RMAH	0.0465	0.0550	0.1003
SCD	0.0248	0.0471	0.0750
SNP	0.0201	0.0248	0.0325
SOCP	0.0317	0.0485	0.0584
SPCU	0.0418	0.0585	0.2624
SRT	0.0534	0.0687	0.0748
TEL	0.0247	0.0347	0.0492
TLV	0.0134	0.0204	0.0259
TRP	0.0415	0.0705	0.1025
TUFE	0.0333	0.0388	0.0558
VNC	0.0348	0.0383	0.0584

Class 2	0.90	0.95	0.99
AZO	0.0265	0.0405	0.0669
BIO	0.0235	0.0372	0.0434
BRK	0.0223	0.0424	0.0486
BVB	0.0270	0.0299	0.0676
CGC	0.0512	0.0747	0.1289
DAFR	0.0328	0.0400	0.0468
EFO	0.0531	0.0742	0.0969

Class 3	0.90	0.95	0.99
ARS	0.0721	0.0891	0.1325
BCM	0.0460	0.0562	0.0815
BRM	0.0572	0.0650	0.1074
PTR	0.0348	0.0448	0.0566
SIF4	0.0237	0.0280	0.0388

Class 4	0.90	0.95	0.99
SIF1	0.0276	0.0317	0.0406
SIF2	0.0225	0.0270	0.0329
SIF3	0.0255	0.0305	0.0343
SIF5	0.0242	0.0260	0.0295

Class 5	0.90	0.95	0.99
TGN	0.0167	0.0221	0.0327

As a consequence of applying the technique of selection, we selected a portfolio of five stocks, each of them representing the minimum risk stock class corresponding VaR measured probability level 0.99: Tlv,Bio,Sno,Sif5,Tgn. We will try to determine what percentage is the optimal composition of capital that needs to be invested in each of the stocks under consideration, so that at the end of the investment we have a maximum return on investment.

In these conditions, the optimization problem to be solved is :

$$\max \; f = 0.0935 \times x_1 + 0.0238 \times x_2 + 0.0338 \times x_3 + 0.1437 \times x_4 + 0.1716 \times x_5$$

$$\begin{cases} 0.0259 \times x_1 + 0.0434 \times x_2 + 0.0368 \times x_3 + 0.0295 \times x_4 + 0.0327 \times x_5 \le \upsilon_0 \\ \sum_{i=1}^{5} x_i = 1 \\ x_i \ge 0,\ i = \overline{1,5} \end{cases}$$

- We would like that $VaR_\alpha(L_x) \le \nu_0$, where ν_0 is the capital market risk, calculated as measure of BET index risk measured by VaR, ie

$\nu_0 = 0.201\ \text{VaR}_{\text{BRD}} + 0.2007 \times \text{VaR}_{\text{SNP}} + 0.1867 \times \text{VaR}_{\text{TLV}} + 0.186 \times \text{VaR}_{\text{TGN}} + 0.0844 \times \text{VaR}_{\text{TEL}} + 0.0515 \times \text{VaR}_{\text{BIO}} + 0.0324 \times \text{VaR}_{\text{COMI}} + 0.0248 \times \text{VaR}_{\text{BRK}} + 0.0166 \times \text{VaR}_{\text{DAFR}} + 0.0159 \times \text{VaR}_{\text{AZO}}$

The calculations using Table 2 for the 0.99 level of probability lead to $\nu_0 \cong 0.035$

- Return of stock is : $\frac{P_{t'} - P_t}{P_t}$ and the problem for solve is:

$$\max \; f = 0.0935 \times x_1 + 0.0238 \times x_2 + 0.0338 \times x_3 + 0.1437 \times x_4 + 0.1716 \times x_5$$

$$\begin{cases} 0.0259 \times x_1 + 0.0434 \times x_2 + 0.0368 \times x_3 + 0.0295 \times x_4 + 0.0327 \times x_5 \le 0.035 \\ \sum_{i=1}^{5} x_i = 1 \\ x_i \ge 0,\ i = \overline{1.5} \end{cases}$$

Solving this problem leads to the following optimal solution

Table 3

Optimal solution

(r_0)	Optimal solution				
	x_1	x_2	x_3	x_4	x_5
0.026	0.972	0	0	0.028	0
0.027	0.694	0	0	0.306	0
0.028	0.417	0	0	0.583	0
0.029	0.139	0	0	0.861	0
0.030	0	0	0	0.844	0.156
0.031	0	0	0	0.531	0.469
0.032	0	0	0	0.219	0.781
0.033	0	0	0	0	0.996
0.034	0	0	0	0	0.982
0.035	0.031	0	0	0	0.969

Conclusions

Many mathematical methods for portfolio optimization problems use a particular initial composition of the portfolio without specifying how assets have been chosen. The approach proposed by us has an important advantage, as guaranteed by the diversity of the portfolio and has the ability to improve portfolio performance because it starts with an initial portfolio comprising a wide range of low-risk assets.

The proposed methodology has been highlighted by a case of study for the stocks listed on BVB. To have the risk assumed by the investor under the risk of the capital market (measured by the BET index), applying the agorithm presented in this study, we get the combinations presented in Table 3. Therefore:

-at the level of the assumed risk of 0.035 (the level of the risk of the BET index) the optimal portofolio obtained is formed by 97% shares Tgn and 3% shares Vesy;

- the proposed problem has optimal solutions only if the level of the risk lies in the interval (0.026, 0.035);

-we cannot construct any optimal portofolio if the assumed risk is under 0.026;

-in order to have a minimal assumed risk, the optimal portofolio is: 97.2% shares Tlv and 2.8% shares Sif5.

Acknowledgements: This work was supported from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/89/1.5/S/59184 „Performance and excellence in postdoctoral research in Romanian economics science domain"

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MONETARY POLICY IMPACT IN THE CENTRAL BANK BALANCE SHEET IN THE EMERGING COUNTRIES

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Abstract. *During periods of economic crisis, monetary policy operations undertaken by central banks is increasing, often linked in a controversial operations performed by the State. The study examines the impact of monetary policy operations by the central bank on its financial statements in particular in periods of crisis. It also examines the extent to which any losses caused by monetary policy operations could have a major impact on macroeconomic stability*

Keywords: monetary policy; central bank; economic crisis; financial stability; financial institutions

JEL Code: E02.
REL Code: 8J.

1. Introduction

Before the economic crisis, monetary policy in developed countries has been conducted almost exclusively by indirectly influencing the short-term interest rates through various instruments. Power interventions in the financial market by injecting large amounts of liquidity to the bank were very rare plant. During the economic crisis, central banks began to inject liquidity in the market at an interest rate very close to zero. Since the crisis, major central banks at interest monetary policy at historical lows. European Central Bank lowered interest rate to 1% monetary policy, Bank of England to 0.5% and the Fed has lowered interest in a range between 0% and 0.25%. In these circumstances, central banks have used various policies and management structure to balance the situation could still achieve the objectives of monetary policy. Also, the economic crisis has forced central banks to inject a record amount of liquidity to the market, and where the money was not extended, the volume of financial intermediation by the central bank has been increased significantly. With the active interest of the central bank fell to near zero, central bank margin between the active and passive monetary policy related operations dropped to near zero and also injected liquidity volumes, that the market absorbed high pressure began to have the net result of monetary policy operations. In economic crisis, the volume of liquidity pumped into the market by the central bank was often higher than the volume of liquidity in the market absorbed by it, which resulted in recording a negative result on account of central bank and thereby affect its balance sheet.

Losses caused by monetary policy operations can reach levels so high that the central bank is forced to resort to money creation, endangering its basic aim of ensuring price stability?

In 2009, the Czech central bank was the only country in Europe with a negative equity, it has a value of approximative - 4% on the gross domestic product, a record not only negative in Europe (after the Czech central bank, Central Bank of Chile and Indonesia also recorded a negative equity, it has a value of approximative - 3%) . Most positively, the share of GDP total equity is owned by Sweden's central bank with a value of approximative 3%, followed by Norway's central bank with a value of approx. 2%. National Bank of Romania has recorded a relatively high level of this indicator, registering a level of equity reported on 2.78% in 2009

(Figure 1). This indicator, in the case of Romania, while seemingly high, is a proportion influenced the overwhelming level of positive revaluations (EUR 11.6 billion), while the total equity amounted to EUR 13.7 billion. Excluding the positive revaluation of equity calculation is that the equity in the total GDP for the year 2009 to record a value of only 0.43%. In case of National Bank of Romania, the last positive revaluation in the balance sheet is set within equity position, while the negative revaluation is credited with the result, affecting the bank charges at the end of the year. Level positive revaluation in the balance is only temporary, it is reversed and restored the last working day of each month of the year, with no special treatment at the end of the year, as it has negative review.

A careful analysis of the positive revaluation of the balance leads to the following conclusions. This position is determined by the revaluation of bank accounts, that the mark-to market of securities held by the central bank. With forex position movement, leaving the amounts at low cost in foreign currency position, while inflows amount to a higher cost, close to the exchange rate, positive re-turns to come. As in the case of securities held. Once the sale or dissolution, and it turns positive revaluation in income. Potential future revenue growth, profit growth creates pressure on the central bank, in most cases is almost entirely transferred to the state (if NBR tax rate is 80% of net revenues). In conclusion, positive capital consists of revaluation is transferred to the state in a near or distant future, while realizing a de-capitalization of the central bank. However, in a time of economic crisis, the additional revenue generated positive revaluations of the past, central banks provide cover costs, easing the task of taking on the balance sheet mainly by shocks to monetary policy operations.

Whatever its structure, equity, a central bank is acting as a financial buffer in periods of economic crisis and played a major role in ensuring financial stability of the central bank.

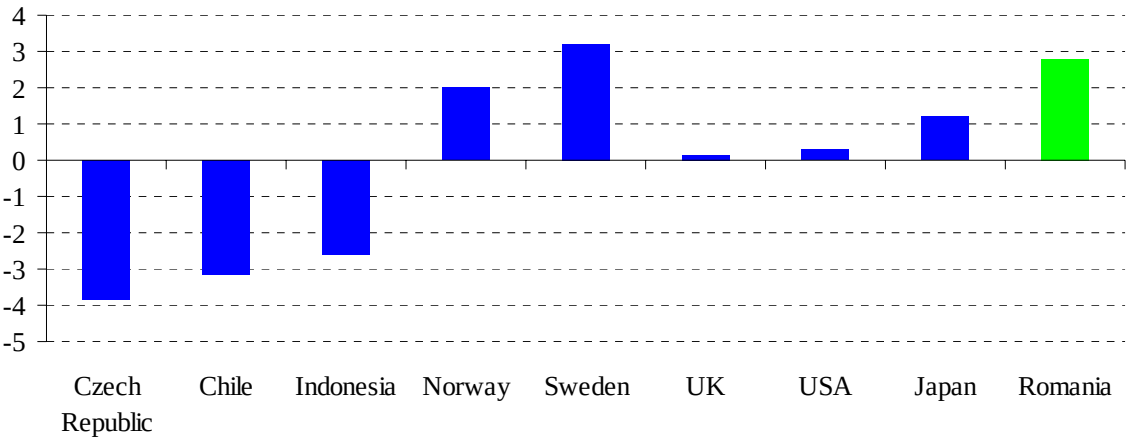

Figure 1. *Central bank capital I percent of GDP*

When the buffer represented by equity, is not enough to ensure financial stability of the central bank it may proceed to the volume of currency issue, which will generate an additional income of seignioraj. This tool is very risky and could jeopardize the central bank's primary objective – price stability and keeping inflation under control by default. If the central bank uses a model of inflation targeting, this makes it impossible to meet the inflation targets set for a long enough period. Closer analysis of the volume of money in circulation, taken from the central bank's balance sheet, is considered as a percentage of its gross domestic product, as evidenced in the Figure 2

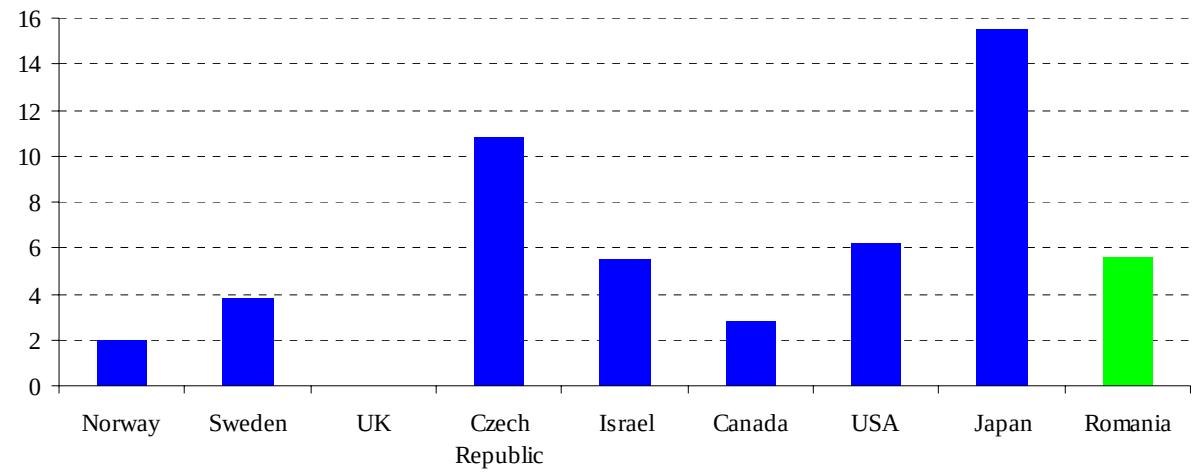

Figure 2. *Currency in percent of GDP*

Summarizing those described above, we believe that the total funds that the central bank has to protect themselves from adverse effects caused by the loss of monetary policy operations, especially in times of economic crisis, are represented by capital and the currency in circulation. Of course, these two instruments considered to be used as described above. The graph below shows the number 3 exactly those points.

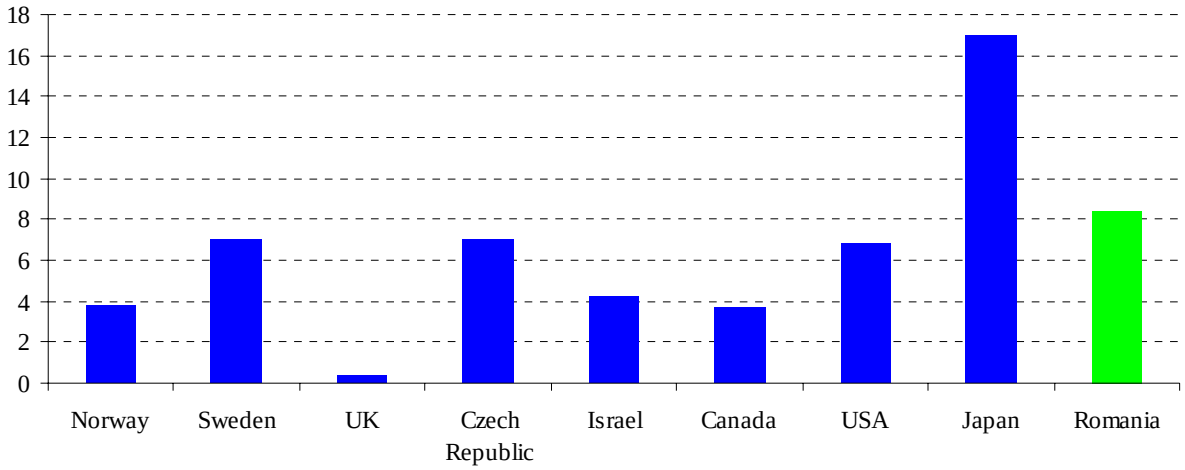

Figure 3. *Currency + capital in percent of GDP*

To continue the examination of the central bank balance sheet structure and to see the financial strength of its buffers it is needed to analyze and size of central bank assets. Accessed financial buffers allow the central bank to conduct its normal operational activity. We may believe that financial buffers are sufficient only if they fund operating expenses at a certain rate of interest. Figure 4 below shows just this form of equity share of cash in circulation and total assets.

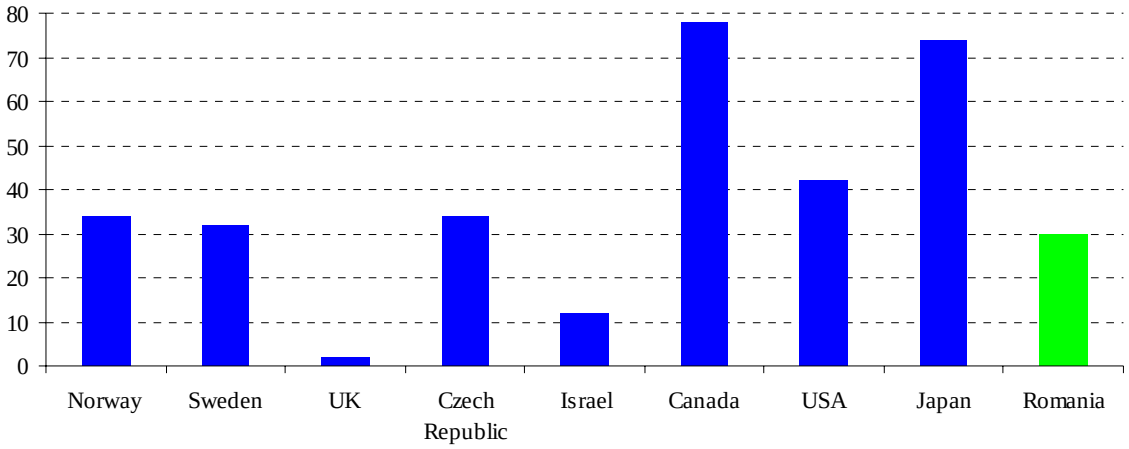

Figure 4. *Currency + capital in percent of total assets*

A special role in the loss of monetary policy work is the result of central bank's other operations, in particular the result of international reserve management, but also at the money issue, that is the operations of credit institutions. Depending on the level of international reserves, also on the pay rate and foreign liabilities, the result of international reserve management exerts a significant influence on the result and the account balance of a central bank.

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THE CRISIS OF CAPITAL MARKET THEORIES

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Abstract. *The global financial crisis has shown that current theories regarding financial markets are not appropriate for any market trend. In fact, they have been developed on financial markets that faced only corrections of the uptrend since the 1930s, and not a collapse requiring governmental intervention.*

Keywords: capital market; investment strategy; portfolio management; analysis.

JEL Code: G11.
REL Code: 11B.

1. Introduction

The current theories regarding financial markets are based, at least implicitly, on the fact that markets have a long term upward trend. Recent developments have shown that financial markets may suffer severe corrections, most of them unjustified.

In this paperwork we show that this is not the only weak spot. Although financial markets theories are based on a comprehensive mathematical framework, they have been developed using weak assumptions, sometimes unexposed explicitly. We try to justify a new approach, as we emphasize the weaknesses of current theories.

2. The future is unknown

Obviously, we can study only the past evolution of the financial markets. Technical or financial analysis is based on past events. Are they relevant? Although the answer is yes, there is no guarantee that these events will repeat themselves in the future, even as patterns. Evaluation using return methods is based on future cash-flow estimates. Are these results reliable? In their step by step development, any assumption can be rejected by future developments: the macroeconomic environment (discount rate), the market itself, company operations, receipts and payments, even regulations. The following statements: “has predicted the crisis one year ago”, “has felt the market”, or “a new crisis shall occur over several years” may be true, but they have no practical utility. Nobody will divest based on such expectations, as investors will not open short positions for years to come, one erroneous investment decision being capable of erasing the entire profits made in dozens of successful transactions.

A first conclusion that may be drawn is that we cannot foresee the future, and knowing the past is no guarantee for its iteration. The conclusion may seem superfluous, but in my opinion it drastically affects the efficiency of current theories.

The modern portfolio theory (MPT) provides the basics for maximizing the return of an investment portfolio for a certain risk level, by proper choice of portfolio equities. It assumes that the yield and the risk of an equity can be measured by the daily relative changes of prices and the standard deviation. In fact, the basis is an implicit assumption: the distribution of relative past price changes will repeat in the future. Otherwise, the theory would be limited to the identification of the former optimal portfolio.

Figure 1. *Past distribution does not repeat in the future*

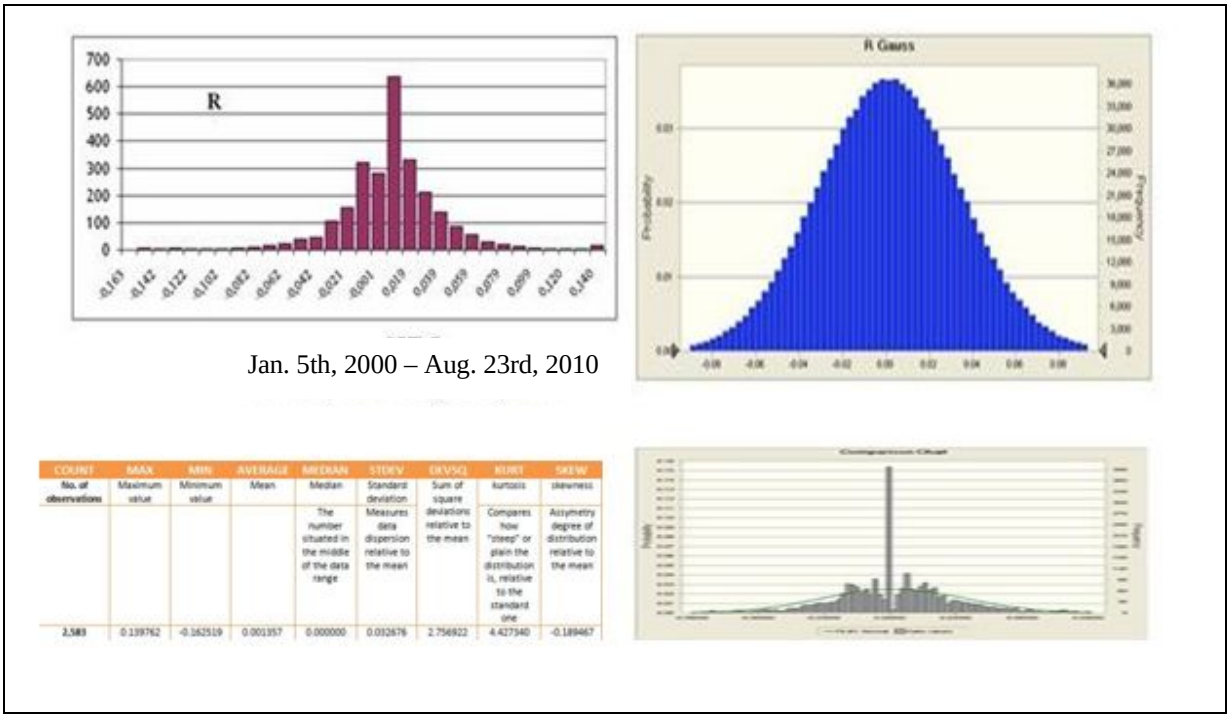

Figure 2. *Distribution of logarithmic variation for SIF5 is not standard*

Figure 1 presents the moving average of daily variation and the standard deviation for the last 1,000 quotes, compared to logarithmic prices for SIF5. It is noted that both yield and risk fluctuate significantly, so that the MPT theory selected portfolio does not keep the same parameters at a later date. At the same time (Figure 2), the distribution does not meet any of the standard distributions, so that Monte Carlo simulation technique is inadequate to reality.

3. The market evolves in trends

This postulate is one of Dow's rules. The starting point is the assumption that the market depends on several factors such as: investor trust, cash availability and cost, overall economic framework and issuer performance. Figure 3 proves the existence of such trends, both for the Romanian and international markets (logarithmic charts).

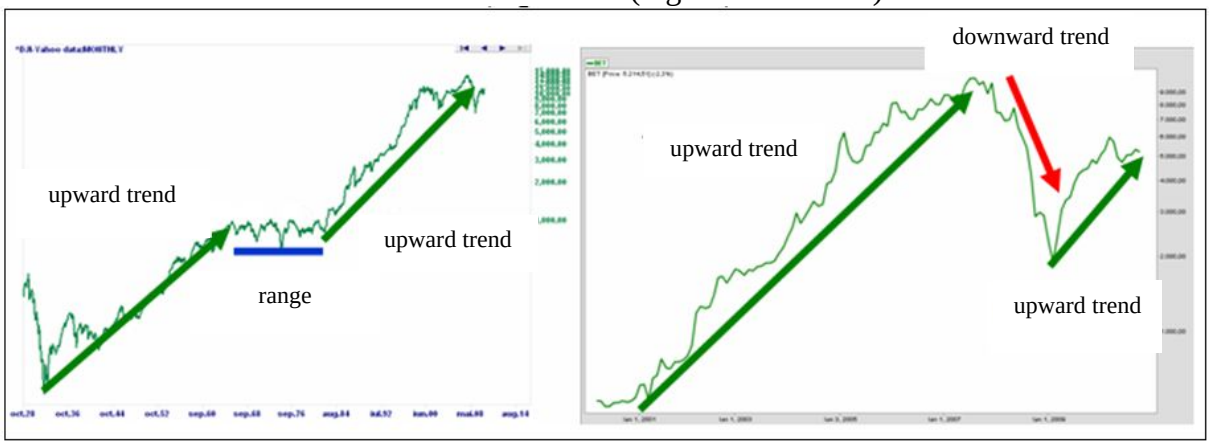

Figure 3. *Trends on financial markets*

Based on the above statements, we identify the second conclusion: the current trend determines the strategy to follow.

On an upward trend, the following investment strategies can be implemented: buy&hold (long), trend following, long call (standard and synthetic). The portfolio may be developed using MPT theory, specific indicators (PER, DY, P/BV), RAROC method.

On a downward trend there are multiple possible approaches: divestiture, hedging, martingale or long put. In these circumstances, selecting the portfolio based on MPT is justified only when using short derivatives.

On a range trading the investment strategies recommended are option straddle and strangle, trailing stop loss and take profit, main trend following. The portfolio must be developed based on financial analysis, the technical analysis being useful only in identifying resistance/support levels.

4. Patterns

Patterns are the basis of technical analysis; they help forecast future trends in financial markets, according to the same principle presented above: the past is likely to repeat itself. Some of the most common patterns are described in Figure 4, for SIF1 shares. Why are these patterns valid sometimes? Because they can self-confirm: analysts observe them, report them to investors who become cautious, waiting for public reaction.

The same category includes fractal based models (geometrical figures that repeats to scale, in some parts of the chart). The exemplification on the Dow Jones chart in Figure 5 is highly illustrative. Actually, Elliott waves theory is an early form of fractal theory. The relativity of wave count (5/3) does not provide, in my opinion, sufficient arguments to be introduced in the investment analysis, statement that leads to the third conclusion: in absence of sound fundamentals, the techniques based on fractals theory and on patterns will be considered only for speculative investment decisions. I consider these techniques more like psychologically induced rules.

Figure 4. *Patterns on the Romanian stock exchange*

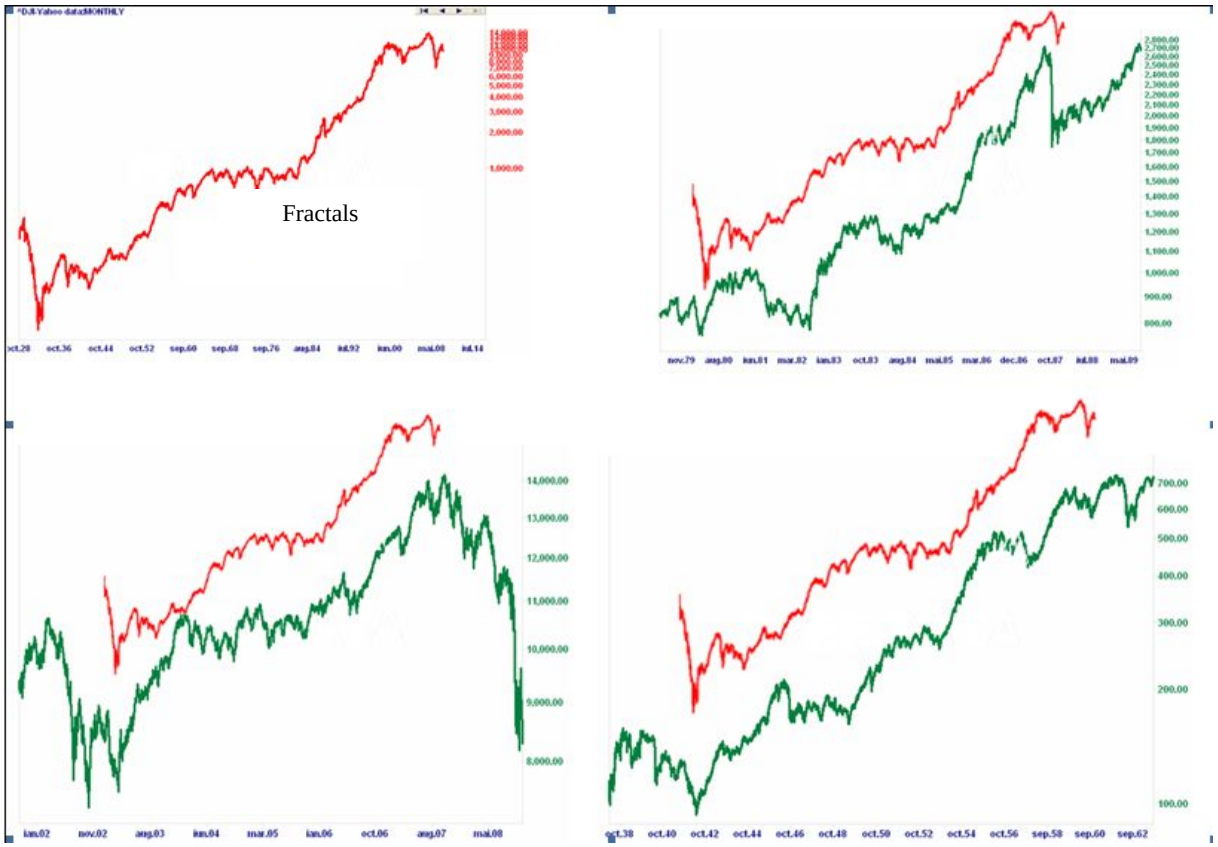

Figure 5. *Fractals identified on the logarithmic chart for Dow Jones*

5. Mathematical functions

The ideal case is the possibility of mathematical modeling of trends using analytical functions. Based on a mathematical framework, we can identify function's asymptotes, relative minimum and maximum (zeros of the first derivative), convexity change (zeros of the second derivative), potential attractors (for chaos theory).

Unfortunately, the output is modest so far. The Fourier transform is used to determine cyclicity, applying *de-trending* and *de-average* functions in Metastock 4 (Figure 6). However, the trend and the average are so strong that the output is far better to the input/output technique based on moving averages.

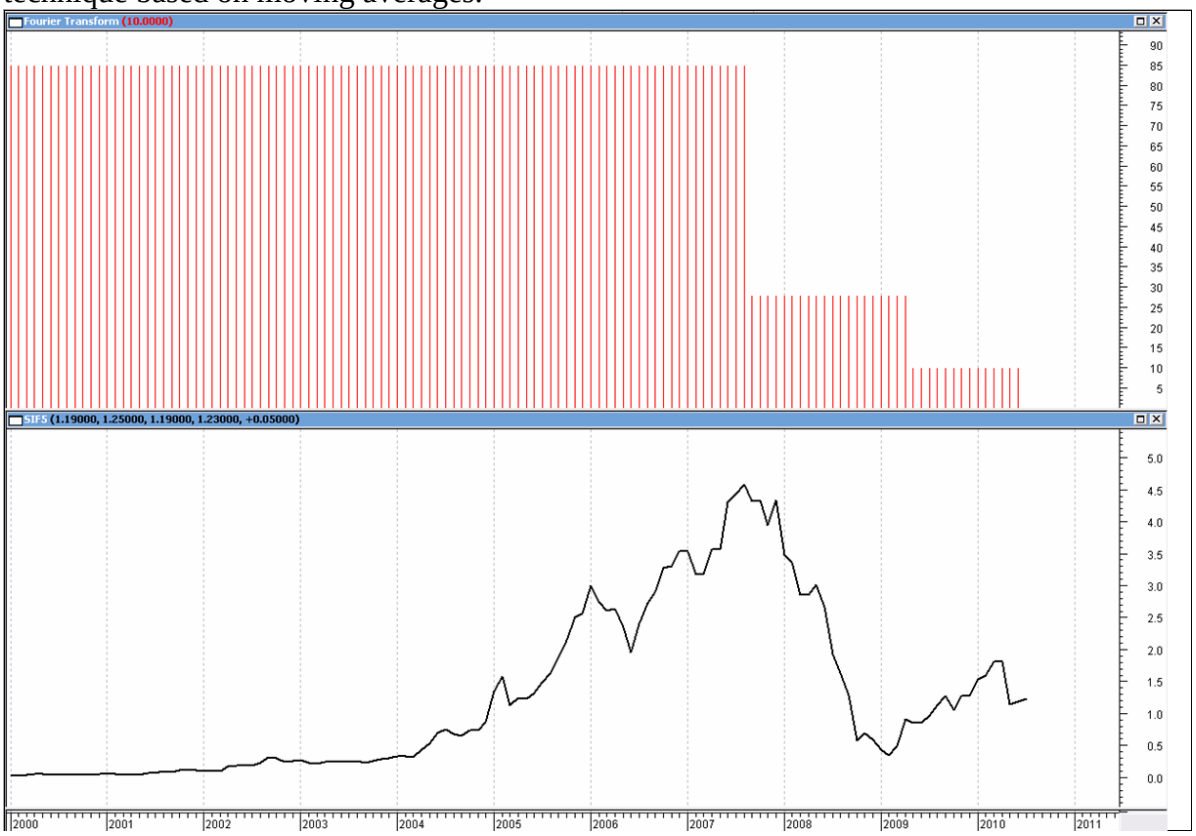

Figure 6. *Identified cycles (Metastock, Fourier transform)*

Mathematical software (such as Matlab) can model financial instruments charts using predetermined mathematical functions, such as mean square deviation minimization. The results are appropriate for the studied period of time, but they become unsuitable for extrapolation (Figure 7). Positive results may also be obtained empirically, using Microsoft Excel (Figure 8).

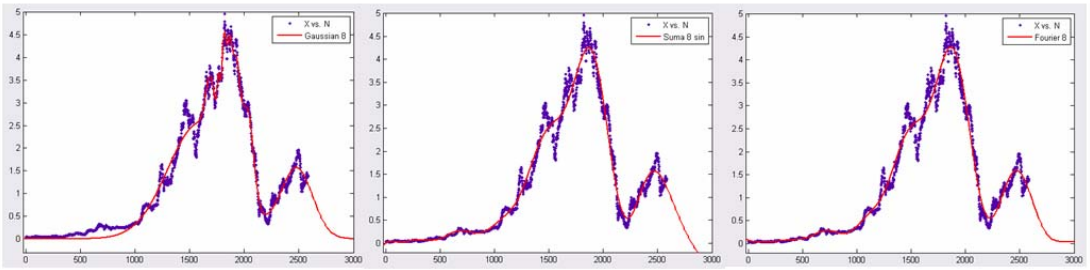

Figure 7. *Analytic functions for trends in Matlab*

The same category includes also the weak form informational efficiency investigation. In fact, it tries to fit the statistical distribution of relative changes in a model called „null hypothesis". The results reject, in general, this model (Figure 9), so that the „random walk" model is validated. Leaving aside the fact the model developed by E.Fama takes into account only the considered equity (and therefore cannot verify the incorporation in the stock exchange prices of news and reports reactions – Figure 10), the process described above verifies only the existence of a functional relationship. Even for different lags the autocorrelation is not relevant: the involved function may simply be of a different type. Based on these considerations, we can formulate the fourth conclusion: the concept of informational efficiency should be replaced with the concept of speed and strength of market reaction to information.

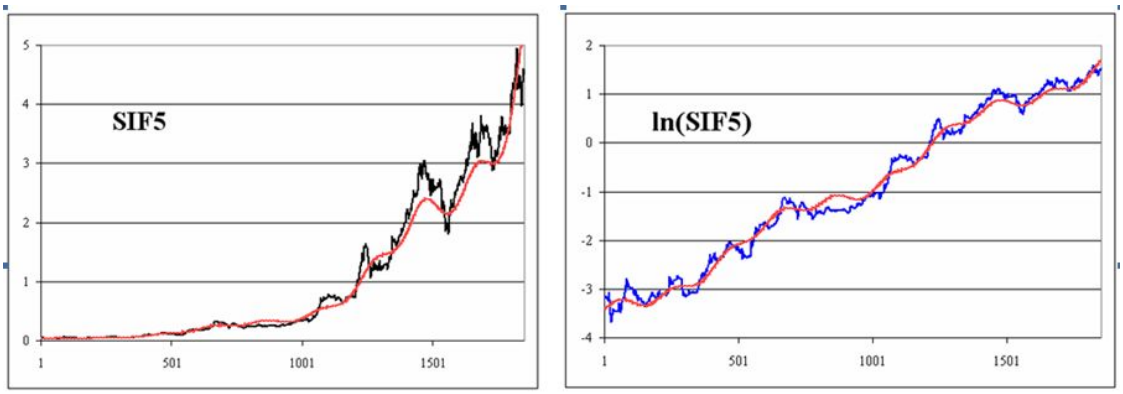

Figure 8. *Empirically determined analytic function for SIF5 upward trend*

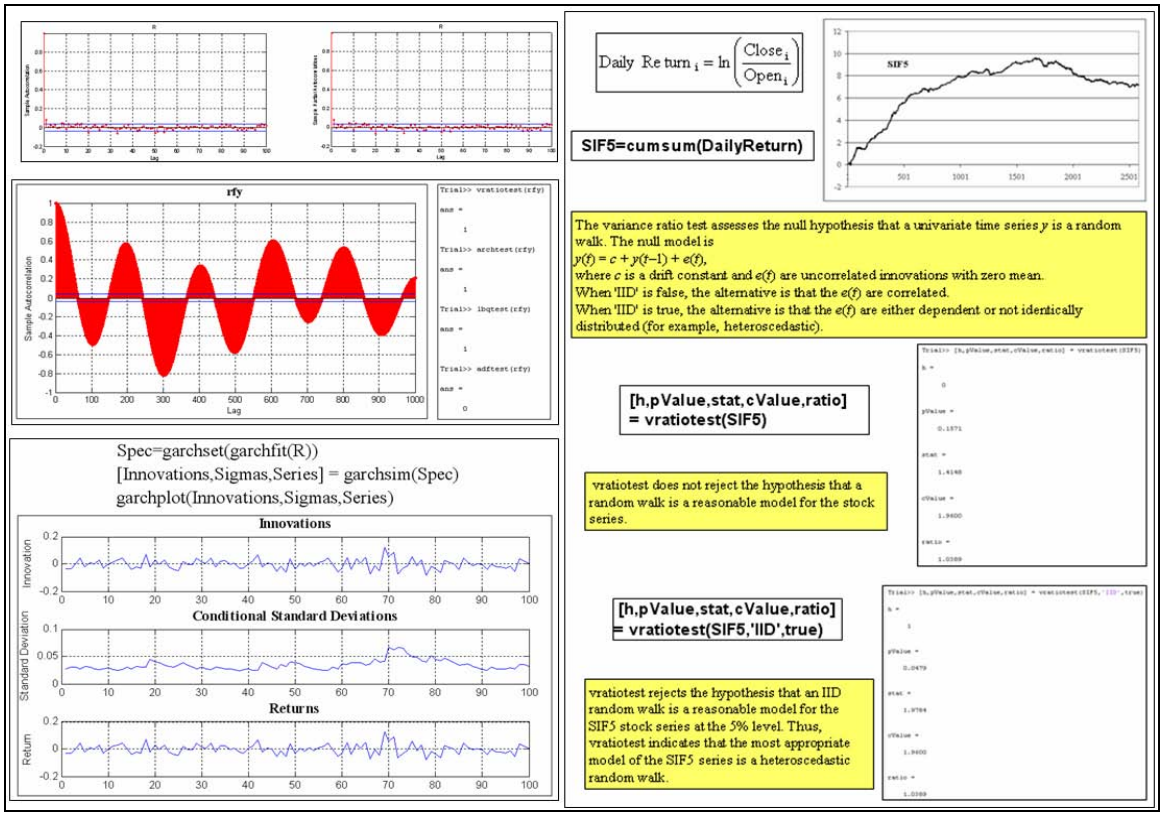

Figure 9. *Matlab applications that confirm Random Walk heteroscedasticity*

In my opinion, the main flaw of statistical analysis is that it does not take into account the data sequence, and therefore it cannot reflect the trend. For example, Mandelbrot's multifractals studies consider only the widening of the statistical distribution tail, with diverging results on various trends.

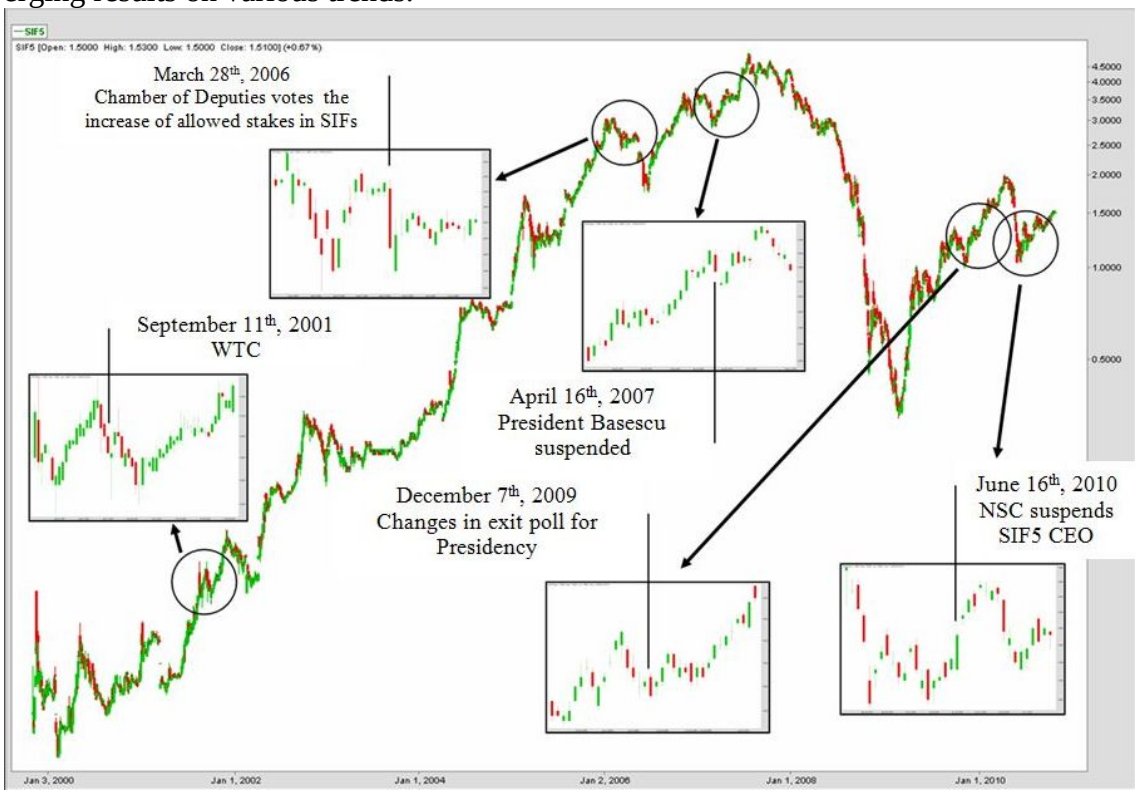

Figure 10. *SIF5 reacts to market reports*

Here comes the fifth conclusion: As long as we cannot guarantee there is no analytic function type relationship describing price variation, statistical approaches are not mathematically justified.

6. A new theory

In this study I intended to describe a few shortcomings of current theories applicability in the financial crisis context. They tend to work only for upward main trends, are based on practically impossible to meet assumptions in real markets and are limited to simplistic mathematical models. On the other hand, their radical improvement is unlikely. In my opinion, the solution may be provided by a sequential approach of the investment process, according to the following steps:

1. Identify the main market trend – for example, identifying investment opportunities in other segments of the financial market, as long as the capital market is bearish;
2. Depending on the trend strength and momentum, the most appropriate strategy must be adopted – we cannot implement the MPT theory if we consider the hedging appropriate; we do not have naked short on a volatile market;
3. Funds distribution – according to the adopted investment strategy. The decision is given by the objective profitability target;
4. Portfolio development – as a result of multiple options: MPT theory, scores, saturation, financial analysis, RAROC; options limited by: risk/reward ratio, availability, know-how;
5. Feed-back and portfolio elasticity – Trailing stop loss, take profit, trend following, hedging;

6. Controlling – monitoring target achievement and a set of measures for all circumstances: profit surplus, standard profit, profitability and market efficiency.

In my opinion, this approach unifies the existing theories in one practical conclusion. Each stand-alone conclusion on informational efficiency is useless as long as it does not lead to an investment strategy. Determining risk value VAR is not sufficient unless we identify improvement methods in the context of severe price corrections for financial instruments. MPT theory is inappropriate when financial instruments have negative return rates. One challenge is to develop investment budgets for hedging operations (safe, but with average yield) on a market boom.

Second, the suggested investment process stages do not contradict the fundamentals of current theories, highlighting the need to integrate them in a logical process framework. Any statistical calculation shows that variable distribution is perfectly random. The focus is on choosing a larger time frame rather than on the type of informational efficiency, regardless the trend strength. Also we avoid using levels too close.

Third, the market trend must be presented as a mathematical function. From this point, the entire process can be summarized as a linear optimization problem. Mathematical models provide solutions for linear equations systems with a higher number of unknown variables (through diagonalization of the system's matrix, for example).

Finally, the last argument derives from the current context of financial markets. The concept of financial crisis, the downward trend, does not exclude the concept of portfolio management efficiency. There are investment strategies applicable according to the observed developments (strengthening or weakening the trend, etc.).

7. Conclusions

Questions such as "Is this the right time to buy shares?", "What shares should I buy?", "How long should I hold my shares?" are natural, but do not have a standardized answer. Properly implemented, the investment problem formulation must answer simultaneously several questions: "What markets should I enter/exit?", "What percentage of the available amount should I invest?", "What is the optimal portfolio structure?", "Which are the entry/exit signals?", "Does the investment returned the expected outcome?". All these issues are interconnected, thus the implemented theories must take into account all these considerations.

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AN ARCH MODEL OF ROMANIAN EXCHANGE RATE

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Abstract. *After the accession to the European Union our country has experienced massive capital inflows that have affected the evolution of the exchange rate. Looking at the exchange rate we observe a break in the national currency appreciation due to the economic crisis, the series are heteroskedastic and asymmetric. For the modeling of exchange rate series we use a time series model that includes component heteroskedasticitate, ARCH model. with normal distribution.*

Keywords: exchange rate; ARCH; heteroskedasticity; economic crises.

JEL Codes: G17, C32.
REL Codes:10G, 11B.

1. Introduction

Along with the balance of payments, the currency convertibility and exchange rate reflect the position of the national economy in the world economy. By monetary convertibility in the modern current sense we understand: “the right of the residents and non-residents to exchange their national currency with a foreign one by selling and buying on the market without any restriction with respect to the sum exchanged, the purpose and the quality of the person performing the operation” (Dardac, Vascu, p. 14).

The International Monetary Fund defines monetary convertibility as the abolition of restrictions and discriminations concerning international payments and transfers. The purpose is to avoid the discriminating foreign currency practices. Taking into account the compliance with these requirements, the Fund classifies currencies in the following categories:

1. Freely convertible or usable currencies, category comprising the American dollar, the English pound, the Euro, the Japanese yen, belonging to the three great international economic blocks: Anglo-Saxon, European and Asian. These currencies are largely used at an international level for commercial transactions and can be used as reserve currency and even circulate in other national areas;
2. Currencies with external convertibility, also called convertible currency, that feature total convertibility of the capital account but still maintain some restrictions concerning capital transfers;
3. Currencies with internal convertibility, these representing restriction both for the convertibility of the transfer of capital and for that of current account; the restrictions can be of the type of a maximum limit of the currency that can be bought or sold etc.;
4. Non-convertible currencies, those that do not fulfil or do not accept the conditions of passing to convertibility. These countries can only perform international trades on the basis of clearing, generally these countries being confronted with serious problems of liquidity and of internal economic stability;
5. Transferable currencies, non-convertible account currencies but which, given the faith that a group of states entrusted them with, are used as an international payment instrument.

The level of the exchange rate plays a "symbolic" role for many countries, it is perceived by public opinion as one of the nation's power external signals (Zapodeanu, 2002, p. 141). Am important attribute for the credibility of the financial system is the exchange rate regime. The actual exchange regimes differ especially by the floating level, between the stable and flexible levels occurring numerous other regimes such as:

– of stable exchange rates – that represents the regime of exchange in which the currency is exchanged only at a fixed rate, non-fluctuant and stable in time, alterable under exceptional circumstances only. The stable exchange rates bear a high risk as the value of the national currency can be distorted, either over or under evaluated. Countries like Argentina that had had stable exchange rates felt then compelled to strongly devalue their currency, while China currently holds large reserves of dollars that under free exchange rate would generate a strong appreciation of the yuan;

– of flexible exchange rates (genuine floating) – in this case the exchange rate being freely established on the currency market, a regime specific to the highly developed economies;

– supervised, controlled floatation (managed floating) – in this case the interventions of the central bank being rare and only in exceptional circumstances in order to avoid disequilibrium, intervention occurring in the sale or purchase of currency to limit exchange rate fluctuation;

– crawling peg – the exchange rate is stable as related to a standard or pegged on another currency that can be: USD, Euro, or a currency basket; it can be discretionary modified; it is also used as a nominal peg; this regime was adopted by countries in transition (Hungary, Poland, Czech Republic);

– fluctuation, variation band (target zone) – the exchange rate varying within a pre-established corridor, the central bank intervening with diverse instruments of monetary policy when the rate comes close to the limits of the bands; this type of system is also used in the period prior to adopting Euro within the mechanism of the exchange rate (ERM II) and it is the one Romania will also accede to, after 2012[(1)], and which it will have to take part to, for at least 2 years, one where the fluctuation margin compared to the central level is +/-15%;

– a special case for the stable exchange rates is the monetary council (currency board) – whereby the rate is established by law in relation to another currency, the currency board is the only institution that will issue national currency, the central bank losing this right. It is a method adopted by countries with a high inflation with the view to rapidly reduce it to the level in the country whose currency they pegged on. The financing of the budget deficit by the monetary authority is thus eliminated. The equilibrium of the external balance of payment is instantly achieved, thus the external deficit enforcing the reduction of the monetary mass, the interest rate will increase, which will trigger a decrease in the internal demand and the current account deficit is diminished, the adjusting system being implicit. The currency board was a system that functioned before the international monetary system of Bretton Woods in the developing countries, especially in the British colonies, then in the '50s - '60s it was abandoned being replaced by systems based on the central bank. Beginning with the 1991 Argentina tries a stabilization of the national currency on the base of currency board, a measure quite necessary considering the inflation rate of 2000%. The peg chosen was the American dollar and, as a consequence of this decision, in the following four years, by 1995, inflation lowered to 5%. In order to successfully complete the pegging, an international support of over 5 milliard dollars was necessary. Following Argentina's example, starting with 1992 the Baltic countries Estonia and Lithuania will adopt the currency board by pegging on the German mark, respectively the American dollar. At the high time of paying the public debt, the year 1999, Romania flirted with the idea of instituting a currency board but the moment chosen was not the best as a consequence of the Asian crisis that generated a lack of

liquidity at international level, as well as because of the particularities of our country regarding the fragility of the bank system;

– the monetary union (currency union) represents the adoption of the same currency by neighbouring countries, or of the most important commercial partner; we hence witness the dollarization in Latin America (Ecuador, Peru) and the Euro zone where, besides the 15 states that adhered to the Euro zone (Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Malta, Holland, Portugal, Slovenia and Spain), Euro is also used by: Monaco, San Marino, Vatican, Montenegro, Kosovo.

The benefits of establishing a monetary union are connected to the existence of an optimum monetary area, the optimum monetary zone being defined as a geographic region in which member states have to use stable exchange rates or a single currency, there existing, nevertheless, several criteria that a country has to fulfil in order to be part of an optimum monetary zone:

- high level of labour force mobility;
- diversified production;
- degree of economy openness;
- symmetry of external shocks.

From this point of view, the European Union is not totally an optimal monetary zone, there being differences in the mobility of the labour force (especially due to linguistic barriers), though adhering to an economic union and then to a monetary one, together with the implementation of the community acquis, as well as the liberalisation of the mobility of the labour force showed that the level of integration in the euro zone is increasing, and that the economies of the states in the euro zone become integrated parts as a consequence of the monetary union (Bitca et al., 2007).

The starting point for analyzing the evolution of exchange rates is the theory of Purchasing Power Parity (PPP), research done in this area have shown the limits for applying this theory (Guglielmo, Luis, 2010), the main criticism of PPP theory point out the small relevance for the obtained patterns and also the necessity of having large data sets. One of the many problems researchers face when analyzing data series on financial markets is there structure (which are generally leptokurtic[(2)]), leading to an increase in the probability of extreme events(because of the fat tail) , but with the development of ARCH models (Gujarati, 2004, p. 858) and more recently the GARCH generalization, it has given rise to sufficiently powerful tools for modeling financial series. The evolution of exchange rate in Romania was analyzed using GARCH type models by Codirlasu (2001) on the series ROL/EUR and ROL/dollar for the period 2000-2001 concluding that the series follows an asymmetric ARCH process[(3)]. Necula (2008) using the series available for 1999-2003 and using an GARCH model and a Copula-GARCH model concludes that dynamic models Copula-GARCH give an extra information and brings more stability in results.

Continuing the series of research work carried out on Romanian exchange rate we aim to analyze the evolution of exchange rate RON / EURO from 2005 until 2010 using an ARCH model , the structure of the papers is: methodology and data used in Chapter 2.1, Chapter 2.2 Analysis of data series, 2.3 ARCH model application and three final conclusions.

2. Modeling exchange rate series RON/EURO 2005-2010

2.1. Methodology and data sources

The data used are the exchange rate series for RON / EUR for the period January 3, 2005 to October 29, 2010, daily series, the data used are obtained from www.bnro.ro, the software package used is GRETL, on the initial data the following conversion will be applied for the returns as follows:

$r = \log(curs_t) - \log(curs_{t-1})$.

The ARCH model developed by Engel (1982) has the following structure:

$y_t = B_o + e_t$ (1)

$e_t \mid I_{t-1} \sim N(0, h_t)$ (2)

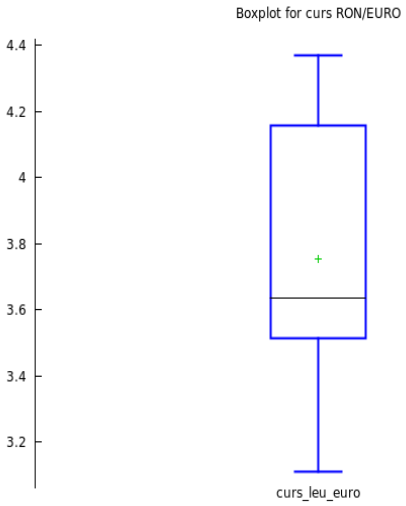
$h_t = \acute{\alpha}^0 + \acute{\alpha}^1 e^2_{t-1}$, $\acute{\alpha}^0 > 0$, $0 \leq \acute{\alpha}^1 < 1$ (3)

Equations 2 and 3 express the ARCH type models, which are autoregressive models with different variations in time, while the errors follow a normal law of mean 0 and variance h_t. The value of $\acute{\alpha}^0$ and $\acute{\alpha}^1$ must be positive otherwise and the processes will be explosive (Carter, 2008, p. 364), in the case of errors (residuals) they follow a normal law with a variable that depends on predecessor value of it.

2.2. The analysis of series exchange rate and return on exchange rate

During the analyzed period the exchange rate RON/EURO value fluctuated between a low of 3.12 and a maximum of 4.37 RON/EUR, with a median value of 3.63 RON / EUR, having a standard deviation of 0.34.

Summary Statistics 2005/01/03 - 2010/10/29	
curs_leu_euro 1485 observations	
Mean	Median
3.75373	3.63650
Std. Dev.	C.V.
0.34	0.0914353
Minimum	Maximum
3.11120	4.36880
Skewness	Ex. kurtosis
0.356643	-1.22408



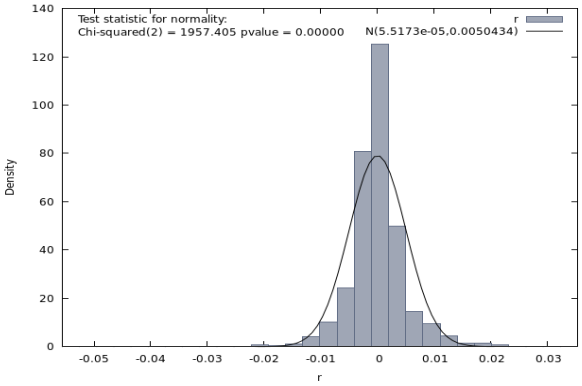
From the graphical analysis of data series we observe that in the case of exchange rate (logarithm of the course) it had a strong fluctuation, we can observe two different periods:

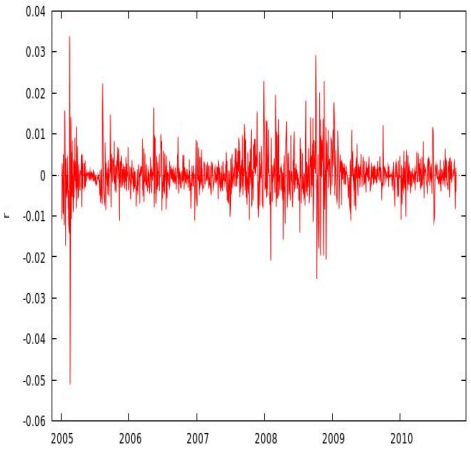
1. 2005-2007, during which the national currency (RON) knowns a period of appreciation, with an average downward trend.

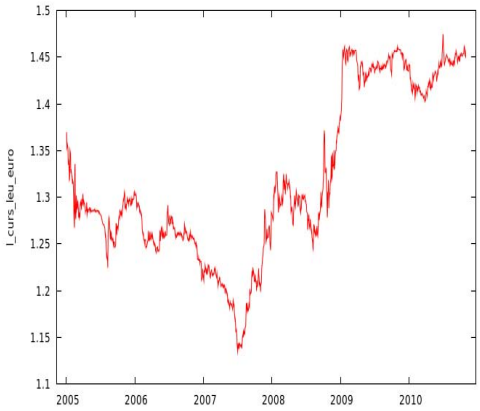
2. 2007-2010, national currency (RON) experiences a sudden move upwards a similar level of late 2005, but our country being hit by the international crisis another devalorizations takes places, and from 2009 the trend is flattening.

The returns are experiencing a high fluctuation and it can be seen the phenomenon of clustering of the variation, periods of high volatility are followed by periods with low volatility.

Test for normality of r:	Test value	p-value
Doornik-Hansen	1957.41	0
Shapiro-Wilk	0.88	0
Lilliefors	0.11	0
Jarque-Bera	9300.66	0







The analyzed series has an leptokurtotic distribution, the normality tests showing that normality hypothesizes doesn't check the assumption of normality with a probability of 95%, so we move on to test for heteroskedasticity with the LM test (Carter, 2008, p. 369).

Test for ARCH of order 1				
	coefficient	std. error	t-ratio	p-value
alpha(0)	2.03E-005	2.53E-006	8.02	2.20e-15 ***
alpha(1)	0.2	0.03	7.86	7.13e-15 ***
Null hypothesis: no ARCH effect is present				
Test statistic: LM = 59.4397				
with p-value = P(Chi-Square(1) > 59.4397) = 1.26101e-14				

2.3. Application of the ARCH model

The best explanation of ARCH model for the return series will have lags of return and also lags in the heteroskedastic part, and thus the model will have the explicit form:

$y_t = B_o + y_{t-1} + ...y_{t-n} + e_t$

$e_t \mid I_{t-1} \sim N(0, h_t)$

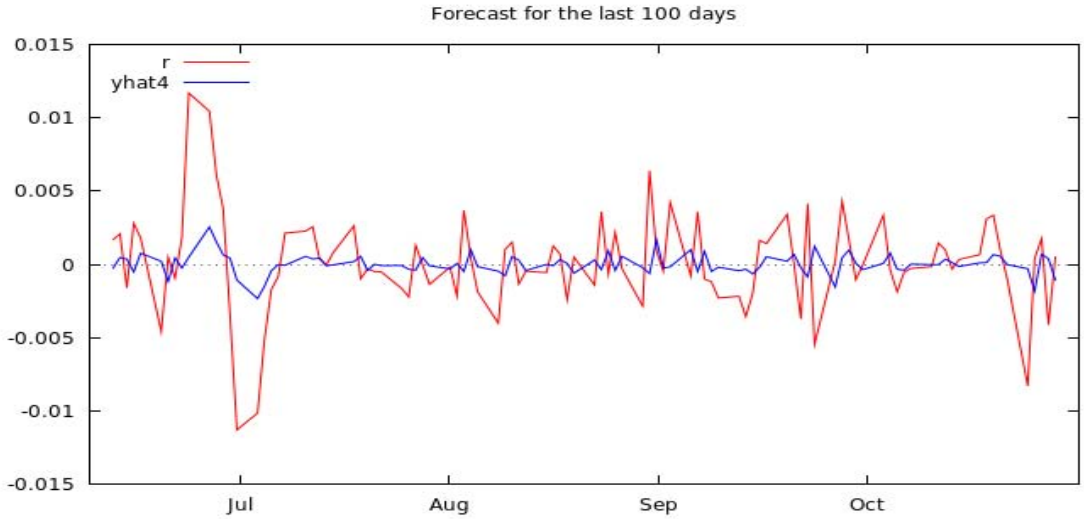
$h_t = \alpha'^0 + \alpha'^1 \times e^2_{t-1} + \alpha'^2 \times e^2_{t-2} + ...,\ \alpha'^0 > 0, \quad 0 \leq \alpha'^1, \alpha'^2, ... < 1$

In the model analysis we will take into account the relevant coefficients (Student test), and maximizing the information criteria using Akaike and Schwarz test, the starting point is the assumption that the variable, return, is influenced by a delay of up to 30 lag, and the variance has five lags. Analysis of these assumptions shows that the most efficient is the 4th model:

Model	Lag r	Akaike Criterion	Schwarz Criterion(5)	SSE
1. ARCH*(5)**	5	4053.47	4085.24	1339.02
2. ARCH*(3)**	3	4044.55	4065.74	1328.3
3. ARCH*(3)**	2	4045.58	4061.48	1329.47
4. ARCH(3)***	2	4044.03	4054.62	1329.87
* - with constant ** - the coefficients for the 3rd , 4th , 5th lag aren't significantly different from 0 ***- without the constant				

Based on Akaike and Schwarz information criteria the best performing model is the ARCH-type (3) with two lags of the dependent variable, based on this assumption we built two ARCH models, model 3 and 4 with and without the constant, retaining the best performing as model ARCH (3) without constant, which has the following form:

Model equations	$r_{\_estimat}$= 0.229 x r_1 – 0.0729 x r_2 (0.0293)* (0.0290)*
Variance equation h_t	$h_{t\_estimat}$ = 0.00001225 + 0.1145 x e^2_{t-1} + 0.0672 x e^2_{t-2} + 0.2986 x e^2_{t-3}
Sum squared resid 1329.870	F(2, 1477) = 31.07665
Schwarz criterion 4054.623	*(standard errors in parentheses)



In the ARCH model we propose for our country the residuals follow a normal distribution law, analysing the exchange rate it shows that it follows an asymmetric leptokurtic distribution. We identify two trends in the evolution of exchange-rate 2005-2007 period when the RON strengthened, with a moderate trend, and the 2007-2010 period, with a strong devaluation in 2008 and 2009 in two waves, then fluctuating in a baseband of 4.1-4.3 RON/Euro. The fluctuations in return are stronger in early 2005 and then in late 2007 till 2009, the first period may be generated by the pre-accession period of our country to the European Union and the massive flows of capital that entered our country financial system, for the period 2007 - 2009 the explanation can be found in the international crises; after the signing of the agreement with the IMF and receiving a portion of the tranche by the central bank, NBR actively intervened in the market which led to a decrease in volatility. We aim to develop the model further by using the generalized form GARCH and other models of family-arch ARCH average.

Notes

(1)Prognosis made in “Romania - passinng to euro” “Romania - Trecerea la euro’’, Mugur Isarescu, BNR , 2007, May, www.bnro.ro

(2) The moment of 3rd order of the series is much higher than for normal distribution (mezokurtik).

(3) The obtained results of the paper can be found at: http://www.dofin.ase.ro/acodirlasu/wp/dofin2001/arch.pdf

(4) http://gretl.sourceforge.net/

(5) When using Akaike and Schwarz informational criteria the best model has the lowest value.

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EFFECTS OF FINANCIAL CRISIS ON BANKING SECTOR STABILITY IN BOSNIA AND HERZEGOVINA

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Abstract. *Financial system of Bosnia and Herzegovina is bank dominated system. Banks have important role for stability of financial system and national economy. Having in mind specific features of financial systems we will analyze major characteristic of banking sectors and their behaviour in financial crisis and after. Bank's stability and managing it in condition of financial crises has requested continues review of financial stability indicators for banking sector and possible sources of instability.*

Authors in this paper will analyze banks assets and quality of assets, capital, profitability and liquidity. Relation between commercial banks and central bank Bosnia and Herzegovina and limits on monetary policy also will be of interest in this paper.

Keywords: banking sector; financial stability; indicators; monetary policy.

JEL Codes: G21, E5.
REL Code: 8J.

1. Introduction

Over the last years Bosnia and Herzegovina record transition in banking sector with phase reconstruction, privatization, consolidation and stabilization. With process of transition in BH started consolidation in banking system involved operation associated with the removal of bad loans extended before 1990 and operation to improve their capital adequacy. In last decades banking sector in BH recorded increasing all performance and significant changes in structure of banking market (consolidation, concentration, domination of foreign capital, competition). It's important to analyze impact of financial crises on banking sector and their performance especially on assets and quality of assets, capital, liquidity, profitability. Table 1 shows signification of banking sector in financial system of BH through banking and non-banking financial institutions assets in total assets financial system.

Table 1

Financial institutions asset in Bosnia and Herzegovina (in %)

	2004	2005	2006	2007	2008	2009
Banks	75.0	81.0	79.6	79.9	80.9	82.1
Insurance company	4.9	4.7	3.7	3.3	3.5	3.8
Privatisation investment fund	18.0	12.0	8.5	7.2	4.8	3.5
Micro credit organisation	1.7	4.9	2.6	3.9	4.7	4.3
Leasing companies			5.6	5.6	6.2	6.4
Total assets of financial sector	100.0	100.0	100.0	100.0	100.0	100.0

Source: Central Bank Bosnia and Herzegovina, Financial Stability Report 2009, Sarajevo, p. 23.

In 2009, 89.2 percent of total capital in banking sector was foreign-owned. Banks in foreign capital ownership had share in total assets of banking sectors 94.5%. More than 62% foreign capital in BH comes from Austrian banks. High degree of foreign capital determinate close relationship between banks in BH and their parent banks especially through credits line.

Table 2

Basic indicators of banking sector Bosnia and Herzegovina (in %)

Indicators	2003	2004	2005	2006	2007	2008	2009
Banking intermediation	48.2	58.7	69.3	76.8	93.8	82.9	86.5
Foreign capital in total capital	66.4	69.6	67.0	73.0	83.0	87	89.2
ROAA	0.7	0.7	0.7	0.9	0.9	0.5	0.1
ROAE	6.4	5.8	6.4	8.5	8.9	4.8	0.8
CR3	40.1	56.6	46.3	43.5	40.8	46.4	46.2
CR5	51.2	61.7	59.3	59.3	56.7	60.8	61.8
HHI	655	808	919	926	890	973	999

Source: CBBH, Annual report, different years.

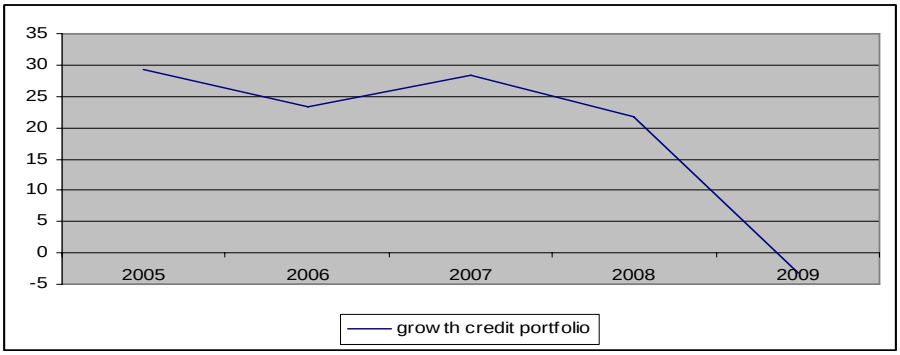
Banking sector BH recorded increasing foreign capital in ownership structure of banks. Even HHI indicates that there is no significant concentration of assets, concentration ration show high expose banking sector to small number of banks. Total banking sector asset in Bosnia and Herzegovina amounted 10,6 billion euros at the end 2009 while in present increasing for -1.6% in comparison with previous year (CBBH, 2009, p. 82). In the structure of banks assets dominate credits and in structure of liabilities deposits. Total loans amounted 7.45 billions euro at the end of 2009, decreasing for 3.1% in relation to 2008. Effects of financial crises in banking sector were manifested through withdrawal deposits in foreign currency and conversation cash and deposit in local currency in cash and deposits in foreign currency. Total deposits reached 6.2 billions euro in 2009, while in present increasing about 2.1% in relation to 2008. In 2008 banks in BH recorded decreasing deposit base for 80 million euro.

According data above presented it's obvious that financial stability in BH is determinated by stability and safety in banking sector. This situation is common to all transition countries request identification and managing problems in baking sector. That is the way to ensure financial stability for all financial system.

2. Financial stability indicators of banking sector of Bosnia and Herzegovina

Credit activities are increasing in last few years, with high share of credit to household in total structure of loans is four internal risks (Figure 1). After significant slowdown of credit growth in 2008, 2009 bring first loan decline in credit activities since 1999. Banks in same period, have been increased investments in securities as result of decreased demand for loans. Decreasing in credit activities is result of decreasing deposits in banks, deposits of foreign investors. Impact of financial crises was obviously in banks' credit activities and their quality. As measure of assets quality usually is used share of non-performing loans in total loans of banking sector (Figure 2). Non-performing loans are increasing in 2009 in comparison with 2008 and we record double decreasing in asset quality of banks in BH.

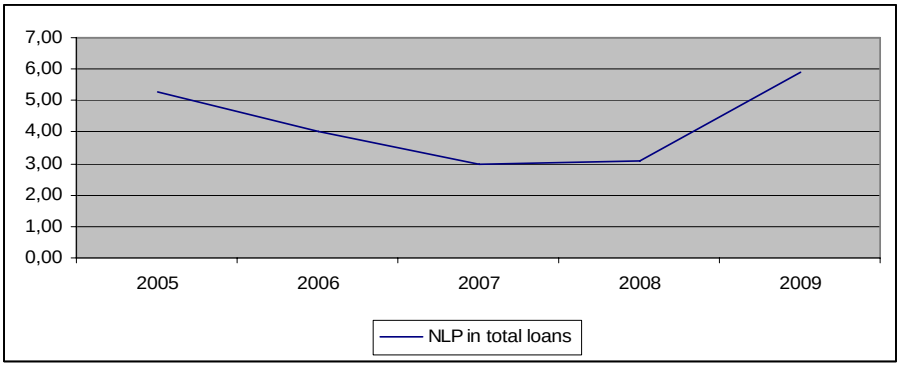
Credit risk is dominated in banking sector and impact on banks' profitability. Weak economic activities and rising unemployment have resulted in decline demand for loans, and bank face with new macroeconomic condition put more strict condition for approving new loans.



Sources: CBBH, Annual report, different years.

Figure 1. *Growth credit portfolio in BH banking sector, 2005-2009*

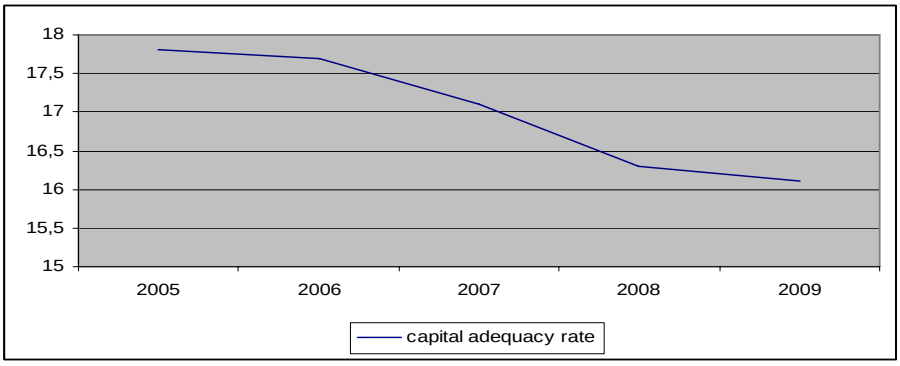
Total loans to all sectors of the end of 2009 were lower compared to 2008, intense decreasing being recorded in segment short-term loans to private companies and long-term loans to household.



Sources: CBBH, Annual report, different years.

Figure 2. *Non-performing loans in total loans, 2005-2009*

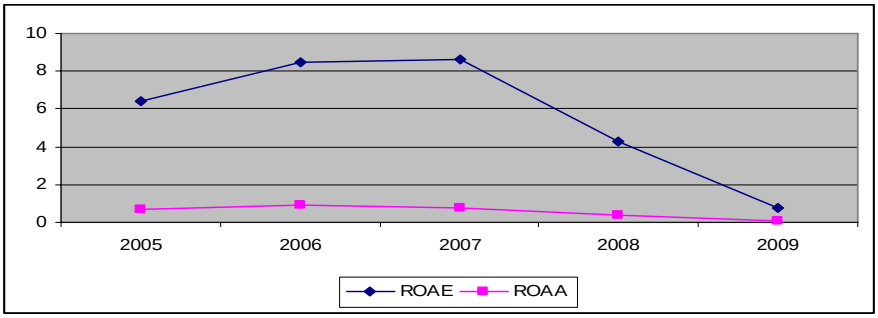
Net capital of 32 banks amounted to 1.32 billion euro at the end of 2009, representing a decrease 0.1% over the previous year. Capital adequacy rate show capital suffices for coverage risk weight assets. Last few years capital adequacy rate in BH banks is decreasing but on satisfactory level. Reason for decreasing to 2007 was strong credit activities of banks which weren't in correlation with bank capital increasing. In 2008 capital adequacy rate decreases as results of strong credit risk increasing. In 2009 with trend in 2010 capital adequacy hold trend of decreasing. Capital adequacy rate decreases because new model of calculating and involving in model new types of risk, market and operational risk.



Sources: CBBH, Annual report, different years.

Figure 3. *Capital adequacy rate in BH banking sector, 2005-2009*

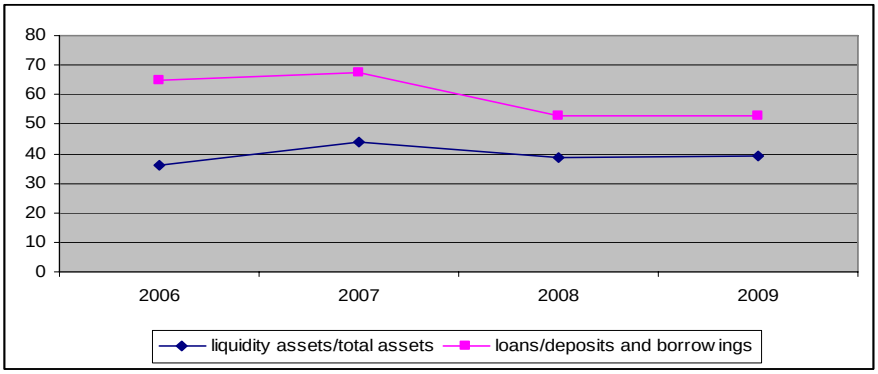
Profitability of banking sector recorded low rate. Decreasing profitability rations was result of decreasing credit activities and quality of banks' assets what led to increasing cost of provisioning and reclassification of the assets. Return on average equity show decrease of 3.54% compared to 2008, while ROAA shows decreasing 0.33% for same period.



Sources: CBBH, Annual report, different years.

Figure 4. *Profitability indicators for BH banking sector, 2005-2009*

Liquidity indicators have been on satisfied level in 2009, and increase in relation to 2008 is large as result of decreasing in banks' credit activities. Indicators don't determinate liquidity risk in banks.



Sources: CBBH, Annual report, different years.

Figure 5. *Liquidity indicators for BH banking sector, 2005-2009*

By analyzing the monthly growth rate of total deposits in 2009, the largest monthly decrease of 1.1% was recorded in March 2009, while the monthly growth rates of total short-term, long term and total deposits at the end of December 2009 amounted to 7.3%, -1.0% and 2.7% respectively (CBBH, 2010, p. 46).

3. Monetary policy and banking sector stability in Bosnia and Herzegovina

With aim of formulating and implementing monetary policy CBBH don't have possibility to manage with monetary policy instruments in relation to other central banks. Reason for that position of CBBH is pure (orthodox) currency board system. CBBH can't provide function of "lender of last resort". Only reserve requirement is instrument of CBBH available for managing bank's liquidity and restrict its credit activities. Through reserve requirement rate manipulation and changing requirement base in process of calculate reserve requirements CBBH manage with financial stability in banking sector of BH.

After the required reserves rate was reduced since November 2008 from 18% to 14% and all new credit lines that commercial banks withdraw from foreign countries were excluded from the base for calculation of the required reserve rate, in 2009 the CBBH also continued its policy of reducing required reserves in order to release additional liquid assets to commercial banks. Thus, from January 2009 a differentiated required reserve rate started to be applied, by which the required reserve rate included in the base for required reserves

calculation, with maturity longer than one year, was decreased from 14% to 10%. From May 2009, the required reserve rate in the base, with maturity over one year was reduced to 7%, and the government deposits earmarked for development programs were excluded from the base. In short-term point of view, the changes in the required reserve policy have no impact on credit loans, but from the long-term point of view, the funds released from the reserve accounts can stimulate lending activities (CBBH, 2010, pp. 46).

Measures taken by the CBBH reflected in the reduction of funds that commercial banks hold at the required reserve account with the CBBH. At the end of 2009, funds in the required reserve account were lowered by KM 808.6 million in relation to the last accounting period a year earlier. During this same period, excess reserves increased to KM 781.6 million. This shows that commercial banks have kept in reserve accounts the biggest part of the funds released to them to improve their liquidity positions and to encourage lending activities.

Also, with financial crises developing CBBH start to decreasing reserve requirement rate and on that way make easy to commercial bank to deal with increasing need in liquidity. Last change of reserve rate is result of attempt to ensure through banks cheaper money to real economy. In this situation and with undeveloped money market, banks must ensure adequate liquidity and involve best practise in managing liquidity risk. Financial crises CBBH start to decrease reserve requirement rate and on that way make easy to commercial bank to deal with increasing need in liquidity. Last change of reserve rate is result of attempt to ensure through banks cheaper money to real economy. Central bank in cooperation with the Ministry of Finance and public agencies has important role in developing the domestic money market (Treasury bill market) and domestic debit market - government securities market.

Conclusion

In bank dominated financial system, financial system is sound and safety if banks, which represent largest part of financial system, are sound and safe. Banking sector analyses time series of financial indicators: credit activities, profitability and liquidity in banking sector before and under financial crises. Analyses show impact of financial crisis on banking sector in BH. Banking sector stay stabile under financial crisis and indicator of profitability, liquidity, credit activities decrease but stays on satisfy level.

In purpose to give impact decreasing credit activities BH banks and manage liquidity position in banking sector, CBBH has limited possibility to use monetary policy instruments. CBBH can't provide function of "lender of last resort". Only reserve requirement is instrument of CBBH available for managing bank's liquidity and restrict its credit activities. Through reserve requirement rate manipulation and changing requirement base in process of calculate reserve requirements CBBH can help manage excess or otherwise inject liquidity.

Managing financial stability in BH is limited. National authorities must work on improvement existing monetary regime or creating additional channels for helping banking sector. Also for problem in regulation and supervision must find solution. Commercial banks in such environment must careful supervise their liquidity position and kept excess liquidity on own or central bank accounts.

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SECTION V
MACROECONOMIC STABILITY

FREE TRADE AREA

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Abstract*: This paper approaches some of the issues about relationship between two economic powers, EU and US It is really about a free trade or all this are just a mask on economic world. The world economy can only grow together, it is not enough one economic power, must be at least two.*

EU and US do not have long historical economic connection but I am sure that this will go on for a long time for now on and this relationship will have a real success.

Keywords: free trade area; protectionism; goods; market liberalization; trade agreements.

JEL Code: F13.
REL Code: 10E.

The Transatlantic Free Trade Area (TAFTA) is a proposed free trade area between the United States and the European Union (and their related areas: EFTA and NAFTA) in reaction to the growing economic power of the People's Republic of China.

It was considered in the 1990s and again in 2007 but no firm plan has been made. Economic barriers between the two are relatively low and some efforts to ease trade have been made, such as the single sky aviation agreement and the establishment of the Transatlantic Economic Council.

A rift between both the United States and European Union did break out during the 1990s regarding the EU's Lomé Convention with the Group of African, Caribbean and Pacific countries, and it results is some European goods being slapped with up to 100% tariffs on goods entering the United States.

Both regions have also faced numerous challenges over the rules in the rules in the European Union that have required the labeling of Genetically modified organisms (GMOs) including food changed genetically.

Free Trade Area is a type of trade block, a designed group of countries that have agreed to eliminate tariffs, quotas and preferences on most (if not all) goods and services traded between them. It can be considered the second stage of economic integration. Countries choose this kind of economic integration from if their economical structures are complementary. If they are competitive, they will choose custom union.

Unlike a custom union, members of a free trade area do (Transatlantic Free Trade Area, http://en.wikipedia.org/wiki/Free_trade_area) not have a common external tariff (same policies with respect to non-members), meaning different quotas and custom. To avoid evasion (through re-exportation) the countries use the system of certification of origin most commonly called rules of origin, where there is a requirement for the minimum extent of local material inputs and local transformation adding value to the goods. Goods that don't cover these minimum requirements are not entitled for the special treatment envisioned in the free trade area provisions. A free trade area is a result of a free trade agreement (a form of trade pact) between two or more countries. Free trade areas and agreements (FTAs) are cascadable to some degree – if some countries sign agreement to form free trade area and choose to negotiate together (either as a trade bloc or as a forum of individual members of their FTA)

another free trade agreement with some external country – then the new FTA will consist of the old FTA plus the new country.

Within aim of a free trade area is to so reduce barriers to easy the exchange; that way trade can grow as a result of specialization, division of labour, and most importantly via comparative advantage. The theory of comparative advantage argues that in an unrestricted marketplace (in equilibrium) each source of production will tend to specialize in that activity where it has comparative (rather than absolute) advantage. The theory argues that the net result will be an increase in income and ultimately wealth and well-being for everyone in the free trade area. However the theory refers only to aggregate wealth and says nothing about the distribution of wealth. In fact there may be significant losers, in particular among the recently protected industries with a comparative disadvantage. The proponent of free trade can, however, retort that the gains of the gainers exceed the losses of the losers.

In the neo-classical economic theory, it has been well established that global free trade would maximize economic benefits and minimize costs in individual countries and globally at the same time.

However, in reality, complexly free trade has never been realized even at the level of an individual country because policy decisions to domestic political and strategic preferences.

Lately, the number of bilateral or regional free trade agreements (FTAs) has increased significantly. In East Asia, ASEAN Free Trade Agreement (AFTA) is the first regional FTA that has come into full operation in January 2003. In Northeast Asia, a region-wide FTA is yet to emerge. Japan, a long-time proponent of multilateral trade liberalization, has signed a bilateral japan-singapore economic partnership agreement (jsepa) in 2002 (free trade agreement (fta) and market liberalization: creating a seamiless market in east asia, http://www.jetro.go.jp/jetro/profile/speech/symposium/shiryo11-2.pdf). Singapore has signed bilateral FTA with New Zealand, Australia, Japan, European Free Trade Area (EFTA), US and in negotiations with a number of other countries. Among ASEAN countries, Singapore, Thailand, the Philippines and Malaysia have become interested to pursue FTAs with extra-regional countries as an important and tangible policy option, though these countries accorded priority to AFTA as their most important trade liberalization framework. In addition, ASEAN-China and ASEAN – Japan have initiated a Framework Agreement on Comprehensive Economic Co-operation. The ASEAN-China agreement goes beyond and explicitly aims at the establishment of an ASEAN-China Free Trade Area within 10 years. China is the first country that concluded a framework agreement with ASEAN as a group. This could provide a strong incentive for ASEAN to act as a group in developing similar agreements with Japan and Korea, India and other countries. If ASEAN can become a strong and viable hub and introduce some consistency in its various bilateral agreements, it can turn the ASEAN-China framework agreement into a comprehensive, region-wide agreement. Without such a regional-wide consistency in bilateral trade rules, there is a great risk of having a "spaghetti bowl syndrome" in the East Asian FTAs and business network that will increase transaction costs, overlapping and impediment to a seamless East Asian marketplace.

Increasingly, the East Asia Free Trade Area (EAFTA) has become an important agenda for East Asia. Because of the risk of overlapping bilateral FTAs, it is argued that East Asia needs to consolidate all its existing sub-regional FTAs in order to move forward towards the formation of EAFTA. Such region-wide FTA is theoretically optimal but very difficult to implement because of different levels of economic development and economic systems prevailing among East Asian countries.

It is generally agreed that bilateral FTAs seem to provide a more practical approach to achieve a region-wide free trade area but there are risks of overlapping, inconsistency with the WTO principles and rules. It is also very important to note that free trade may also less benefit the less developed countries in the region as much as developmental co-operation. Therefore, market liberalization and free trade must be closely linked with trade facilitation and technical co-operation. Infrastructure, institutional building and human resource development are

important measures to be undertaken by the regional countries in initiating trade and market liberalization and regional co-operation. The vision for ASEAN economic integration, as contained in the ASEAN Vision 2020, envisaged a stable, prosperous and highly competitive ASEAN economic region in which there is a free flow of goods, services, investment and a freer flow of capital to create a seamless market of 500 million consumers.

The strategic linkage of FTAs and market liberalization to ASEAN Vision 2020 and East Asia FTA needs to be elaborated to provide a clear balance sheet of the benefits and costs to regional countries with a view to enhance regional co-operation and a seamless East Asian marketplace.

Free Trade Agreement and market liberalization would contribute to regional growth and market liberalization if the objectives converge with the principle of comparative advantage and market conditions. These conditions can be strengthened and institutionalized through domestic political, economic reforms and good governance.

In addition of reducing the average tariff rates across a broad range of mostly traded goods in the region, it is also very important to liberalize trade in services. East Asian countries are particularly quite resistant to liberalization in the service sector and this sector increasingly has become a dynamic integrated driving force behind regional economic integration. Services in logistic transportation, financing, banking, telecommunication, tourism, IT and other professional services are vital to intra-regional networking in manufacturing activities.

With a view to create a seamless regional marketplace, there are other important ancillary areas of trade facilitation. These are in the areas of harmonization of customs, standardization of products, rules of origins (ROO), dispute settlement mechanisms and competition policy. These policies are necessary to facilitate the efficient and effective implementation of bilateral and regional FTAs that are emerging in the region.

Rapid changes in international and regional environment have necessitated drastic policy and structural changes among countries in East Asia. As a result of these external and internal changes, established industrial structures and production patterns in the world and in East Asia have been considerably altered. Mature and relatively more developed economies in the region have to continually upgrade and restructure. Otherwise these economies would be experiencing "de-industrializing" (hollowing effect) and creating important domestic resistance towards regional trade and investment liberalization. Alternatively viewed, FTAs proposals and comprehensive economic partnership initiatives can be interpreted as policy-induces measures to maximize the potential benefits and to reduce the potential short-run negative implications arising from the acceleration of globalization and shortening of manufacturing product-cycle.

At this stage of regional economic integration and market liberalization, Japan can play a proportionately vital role in providing trade and investment facilitation, capacity building, institutional development, "public goods" through technical and financial assistance to upgrade and restructure ASEAN economies. Through these measures, a dynamic intra-regional flows of trade and investment between Northeast and Southeast Asian can be promoted and thus creating a regional environment for a seamless East Asian marketplace.

1.1.1. Transatlantic economic relations

The world economy grows together. When Japan and the East Asian Tigers Taiwan, Hong Kong, Singapore and South Korea entered into the global economy exchange of goods few years ago, the whole worl waited for the consequence with bated breath. Since then, new economies like China and India forge ahead in the world economy. The integration (The Golden Opportunity – Is the enlarged Europe ready for the Transatlantic Free Trade Area?, http://www.cap.lmu.de/download/2007/2007_eu-china_isic.pdf) of these two countries in the world market will be an enormous challenge for Europe and the United States.

Europe and the US do not have long historical economic connections – the economy has got a preferential status in the transatlantic relations not until the Fall of the Berlin Wall – but with the triumphal procession of the globalization, transatlantic economic area in the world.

In our days, Europe and the United States have the strongest economic relationship ever. They combine 40% of the gross domestic product worldwide and more than one third of the world trade at all. Every day, the exchange of goods and services of about 1.7 billion euro takes place. The transatlantic trade market is brisk: it doubled from 273 billion dollar in the year 1990 to 557 billion dollar in the year 2000. Since the year 2001, the transatlantic trade market has been constant and amount about 400 billion euro a year, despite the Eastern Enlargement. In 2005, exports from the EU to the US amounted to 250 billion euro (23.7% of the total EU exports). Similary the Foreign Direct Investments (FDI) from US companies in Europe and vice versa act as a good indicator for the meaningfulness of the transatlantic relationship. In the year 2004, the total amount of two-way direct stock investment was 1.5 trillion euro.

1.1.2. A volitional protectionism

The idea of a Transatlantic Free Trade Area is not a new one. In the year 1994, the Canadian commerce secretary Roy MacLaren first made proposal about a Transatlantic Free Trade Area. German's foreign minister Klaus Kinkel adopted the idea and brought it forward before, at this time, the EU-US-summit had started. The consequence was an agreement about extensive elimination of trade barriers and in the intensified trade in goods, services and funds, but neither Europe nor the United States have really thought about a bilateral free trade area. In 1998, Europe's commerce commissar Leon Brittan had stalwart plans about the TAFTA, but what he has not was a plan of how to smooth out the distrust not only between the European Union and the United States, but also between the particular member states of the EU. Especially France has seen essential interests jeopardized, because of the potential influence of the United States on the French culture, media and-what else – the agriculture.

Another try to implement a Transatlantic Free Trade Area were the New Transatlantic Agenda (NTA) and the Joint EU-US Action Plan. The NTA had been passed 1995 during the summit conference in Madrid and envisioned a deepening of the cooperation, amongst others in the competition law and the reciprocative authentication of standards and certifications. Almost ten years later, 2004, the European Commission ordered an independent study about the course of the NTA. The appraisal of the results is disillusioning: chances of the NTA to inspire the dusty transatlantic economic relations failed. The main deficiency of the previous process has been an absence of political commitment and assistance. Today, the transatlantic partners are still arguing about the same problems as in the years before. But the view at the problems has changed. It is not just economy anymore. As everything else during the process of changing international relations in a globalized world, economic relations became part of the strategic plan of the United States as well as of the European Union. And this is the greatest chance and the greatest danger for a Transatlantic Free Trade Area. Looking at the three biggest strategical conflicts of the transatlantic economic relationship, the Airbus-Boeing-Conflict about the subsidization of civil airplanes, the European satellite navigation system Galileo and the annihilation of the European arms embargo on China there is one joint element: the insuperableness of the core problem, which lies in every of these topics. The United States will not decrease the pressure on the European Union to stop the subsidization of Airbus because with the success of Airbus, the European Union has stoked fears of the United States to lose what they regard to be very important for their country: their military predominance. The connection of military and civil aviation is of huge strategic importance for both companies and their governments. With Galileo, the satellite navigation system, it touches the same tender spot. Galileo is primarily designed as a very accurate navigation system, but of course with its advanced technology, it can be used for military purposes. Its

dual-use qualities and the fact that, in addition, the European Union has concluded an agreement with China about cooperation and financial holding of Galileo, has lead to confusion in the transatlantic economic relationship. The last controversial subject, the abolishment of the arms embargo on China, shows at forthright the dimension of the dispute between the European Union and the United States.

1.2. To trade or not to trade

Facing the unwillingness of the transatlantic partners to solve their problems by creating a free trade area leads to political inability to illuminate the transatlantic economic relationship through deepening the institutional domain in economic relations. Both regions, the United States and the European Union, are too much involved in domestic troubles like the European constitutional crisis or the US – war in Iraq, to be really aware of the advantages they are about to lose, when they neglect the bilateral economic relations. During the last years, the United States have concluded 15 free trade agreements beside NAFTA, thereof 13 during the presidency of George W. Bush. Most of them were negotiated with Asian states and states in Latin America, because these agreements seemed to yield the most profit fot the United States. The same happened in Europe with the new member states in Central and Eastern Europe during the Eastern Enlargement. The latest plan of George W. Bush has been the implementation of a Pacific-wide free trade zone that would encompass half of the world trade. At the Asia-Pacific Economic Cooperation Forum in November this year, Leaders and business executives discussed an alternative in case the WTO´s Doha round of trade talks never gets back off the ground.

It is difficult to compare the trade agreements. In the meantime it becomes clear that the amount of a trade agreement draws a distinction. What George W. Bush was planning to create -the FTAAP – is a Free Trade Area that would cover 40% of the world's population and 56% of its gross domestic product. The European Union and the United States should finally realize that their economic relationship is at the crossroads. The disputes between Europe and the United States are irresolvable in the view of the special global political and economical situation.

Finally, it is the turn of Europe and the US to act. They need a Transatlantic Free Trade Area. Not because Tafta is inescapable. The economical advantages would be considerable but not outreaching. Between the European Union and the United States, customs duties on industrial commodities are about 4% and therefore the lowest in the world trade. Even if eliminating higher customs duties on agricultural products, the income effect would just amount to 0.3% of the gross domestic product of both regions. A Transatlantic Free Trade Area could help to reconcile some differences just because the free trade area exists. It should be an incentive for the transatlantic partners to attend to their disputes, not to beat around the bush. Certainly, the problems cannot be solved overnight, but with a bilateral agreement, the EU and the US would have a forum, if not an obligation, to resolve their misunderstandings.

A Transatlantic Free Trade Area is a chance for the EU to be on a par with the United States. It offers the European Union an opportunity to act strategically, something the EU has not had the heart to do yet. But strategic alignment is what provides a long-term competitive advantage, not just in economical ways.

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EFFICIENCY AND COMPETITION IN ROMANIAN BANKING SYSTEM: EMPIRICAL EVIDENCES

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Abstract. *Our paper aims to provide a response to a challenge, namely quantifying the efficiency and competition in the Romanian banking system, as we have noted the absence of baseline studies on this topic. Correlated with bank profitability, the two concepts provide a full picture of the bank and answer to the questions: Why, how and where a bank is positioned in the banking system? We believe that our contribution brings back to the center of the theoretical approaches the two coordinates of banking activity, and from the perspective of professionals, we offer them more subtle information about inputs and outputs in banking and the bank's market power, degree of competition and efficiency, in terms of cost or profit. Thus, we have empirically examined the degree of competition and cost-efficiency achieved by the Romanian systemically important banks, because we considered that a high level of efficiency in the banking business, amid a competitive environment, significantly influences the performance and financial soundness of the entire banking system.*

Keywords: competition, X efficiency; performance; efficient frontier; the Panzar-Rosse test.

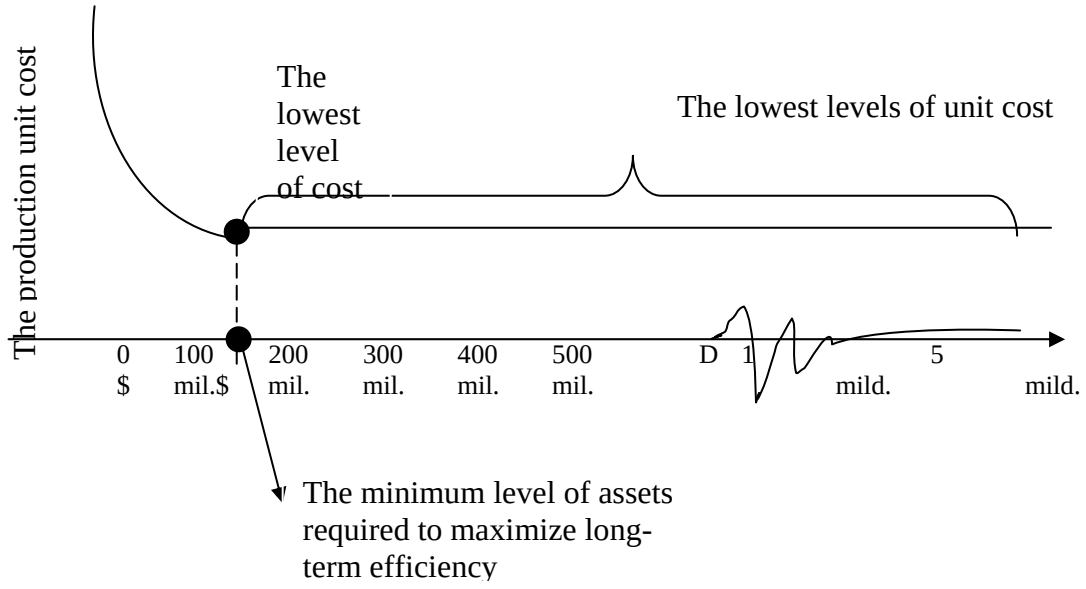
JEL Codes: C61, D43, G 21.
REL Codes: 11C, 7E, 10J.

1. Introduction

In an effort to maximize profitability and shareholder value, many banks recognize the need for greater efficiency in their work. This means reducing operational costs and increasing employee productivity through the use of equipment and improving the quality of their activity. It is important to note that not all banks pursue objectives such as maximum profitability, increase of shareholder value or efficiency. Some aim to increase market share, not necessarily to control prices for banking products and services, but to influence the market and customer behavior, and better manage risk exposure.

In banking, an important aspect is the correlation between bank size and the extent to which it operates with the lowest possible cost, respectively, in terms of a given size, the bank operates with the lowest operating cost.

Studies on this subject show that most banks do not operate at the lowest cost, the degree of efficiency being below the maximum efficiency with 20-25%. In the case of the US banking system, the most efficient banks in terms of assets size are presented, as in the chart below:



Source: Peter S. Rose (2005) Commercial bank management, ed. McGraw-Hill Irwin, ch. 3: The most efficient sizes of banks, p. 97.

Figure 1

The plot shows that large banks operate with a unit cost level lower than that of small banks, which is possible due to the intense competition occurring between large size banks.

In a study by Allen, Rai (1996), for a sample of 15 countries during 1988-1992, it was observed that banking systems that had forbidden the integration of the traditional banking activities with investment banking recorded the highest values of the inefficiency, of approximately 27.5% of total costs. Berger, Humphrey (1997) analyzed 122 empirical studies investigating the issue of banks' efficiency and concluded that most studies place the cost-efficiency of banking activity in the range of 70-90%.

Williams, Gardener (2003) conducted a study on 990 banks from six European countries for the period 1990-1998, and obtained an average cost-efficiency of 85%. Altunbas, Gardener, Molyneux, Moore (2001) considered a sample of 15 European countries during 1989-1997, which recorded an average cost-effectiveness of 75-80%.

Through this study we aimed to investigate the extent to which greater efficiency is reflected in improved competitiveness of the Romanian banking system. We have included in the analysis the six systemically important credit institutions, the time horizon lying between the years 2003-2009. The level of competition had been determined by employing the Panzar-Rosse approach, meanwhile, for quantifying the efficiency of each credit institution we have applied a non-parametric technique, namely Data Envelopment Analysis.

2. The cost-efficiency of Romanian systemic banks

The degree of efficiency is a difficult concept to be measured accurately, directly. The economic literature suggests, however, a number of non-parametric and parametric methods for achieving this goal. In this study, we chose the Data Envelopment Analysis (DEA) non-parametric method because, unlike statistical, parametric approaches, characterized by a central tendency, which evaluates each credit institution compared with an average value, DEA is an extreme point method that compares each bank only with those in the sample considered. The efficiency score of a bank using m input variables to generate n outputs is quantified as the ratio between the weighted sum of outputs and the weighted sum of inputs, with the following formula:

$$\sum_{j=1}^{m} x_n \times output_{nj} / \sum_{j=1}^{m} y_m \times input_{mj}$$

where

n = the number of output variables
m = the number of input variables
x_n = the weight attributed to each output variable
y_m = the weight attributed to each input variable

The bank-specific set of weights is the optimum solution of a linear optimization problem. The model tested has been designed to reflect the cost efficiency, in other words to provide a quantitative dimension of banks' ability to manage (minimize) the cost, by the optimum use of available resources. Our choice is motivated by the fact that inefficiency in the management of costs may signal a deterioration in banks' profitability, or an attempt to transfer some costs to customers, by raising the interest rates on loans and commissions. It is, therefore, an *input oriented* model, the efficiency scores obtained indicating the extent to which the costs associated to input variables can be reduced, without changing the result (output). A value of cost-efficiency scores equal to one indicates that the credit institution is placed on the cost-efficiency frontier, as it follows the best practices. It is considered that the efficiency frontier consists of all input-output combinations which have the property that no input or output can not be improved without worsening any other input / output.

Defining bank *outputs* and *inputs* is not straightforward, due to the intangible nature of banking products and services and their relative positioning in one of the two categories mentioned. For example, bank deposits can be considered both inputs and outputs; it is also difficult to determine if the best banking products' sizing should be done by number of transactions or their value.

Two approaches have emerged in the economic literature: the bank should be treated as an organization that uses fixed and financial capital and labor to produce different categories of deposits and loans, whose measurement is achieved by the number of accounts and number of transactions. To produce these outputs, the bank supports certain operating costs. Outputs are thus treated as flows, respectively, the value of an output produced per unit of time, in the absence of inflation.

Another approach found in the literature is that the bank is not directly producing banking services and products, but an intermediary. In this case, outputs are measured by the value of loans and investments in securities, while deposits, capital and labor are viewed as inputs, either in absolute value or in terms of costs involved, including labor costs, interest costs associated to financial capital and physical capital costs.

In this study we opted for the selection of input and output variables according to the approach based on the financial intermediation function. As input variables we included labor and fixed assets' costs, reflected by operating expenses, and costs associated to borrowed funds, represented by interest expenses. Output variables consist of the volume of loans granted to non-bank clients and investments in financial assets.

Since we aimed not only to identify the efficient credit institutions, but also to highlight how the efficiency of a credit institution changed over the time period analyzed, we have employed a *window analysis*. This technique allows us to determine, simultaneously, the efficiency scores for each bank, in each year considered, as it treats the values recorded yearly by the same credit institution as belonging to a different entity. For our study, financial information corresponding to the six banks, monitored over seven years, have been considered in the analysis to reflect the performance of 41 different banks (for Volksbank data were not available for 2003).

Table 1

Efficiency scores

	Bank	Efficiency scores (%)		Bank	Efficiency scores (%)
1	BCR 2003	48.90	22	Raiffeisen 2004	46.94
2	BCR 2004	83.41	23	Raiffeisen 2005	53.27
3	*BCR 2005*	*100.00*	24	Raiffeisen 2006	65.47
4	BCR 2006	94.17	25	Raiffeisen 2007	94.14
5	*BCR 2007*	*100.00*	26	Raiffeisen 2008	79.01
6	*BCR 2008*	*100.00*	27	*Raiffeisen 2009*	*100.00*
7	*BCR 2009*	*100.00*	28	*Alpha Bank 2003*	*100.00*
8	BRD 2003	46.63	29	Alpha Bank 2004	76.62
9	BRD 2004	40.90	30	*Alpha Bank 2005*	*100.00*
10	BRD 2005	67.71	31	Alpha Bank 2006	73.10
11	*BRD 2006*	*100.00*	32	Alpha Bank 2007	80.01
12	*BRD 2007*	*100.00*	33	Alpha Bank 2008	68.03
13	*BRD 2008*	*100.00*	34	*Alpha Bank 2009*	*100.00*
14	BRD 2009	88.11	35	Transilvania 2003	63.49
15	*Volksbank 2004*	*100.00*	36	Transilvania 2004	43.64
16	Volksbank 2005	88.28	37	Transilvania 2005	59.08
17	*Volksbank 2006*	*100.00*	38	Transilvania 2006	63.13
18	*Volksbank 2007*	*100.00*	39	Transilvania 2007	70.35
19	*Volksbank 2008*	*100.00*	40	Transilvania 2008	51.26
20	Volksbank 2009	86.23	41	Transilvania 2009	43.84
21	Raiffeisen 2003	59.72			

We observed that, for most of the period considered, the six systemically important banks in the Romanian banking system show a state of inefficiency in terms of cost management, as they could get the same amount of output variables, but with lower costs. For example, a score of 48.90% obtained by BCR in 2003 implies that the amount of costs could have been reduced by 51.1%, without altering the component of lending and investment in financial assets. In the same year, BRD has proved the most inefficient in the management of costs, as they have exceeded the needed level with 53.37%. At the opposite is Alpha Bank, which recorded a score of 100%, lying on the best practices, efficient frontier.

The average cost-efficiency scores, for the whole time period considered, rank Volksbank on the first place, with an average of 95.75%, followed by BCR with an average efficiency score of 89.5%, Alpha Bank with 85.39%, BRD with 77.62%, Raiffeisen bank with 71.22% and Banca Transilvania with 56.4%. The results obtained show that, on average, Volksbank should operate the lowest decrease of operating and interest costs, of only 4.25%. BCR should adjust its expenses with about 10.5%, Alpha Bank with 14.61%, BRD with 22.4%, Raiffeisen with 28.78% and Banca Transilvania with 43.6%.

As an additional result DEA method provides an estimate of the value with each input variable should be diminished so that, while maintaining the outputs constant, the credit institution became efficient. All banks identified as being inefficient recorded deficiencies in the management of operating expenses, which proved to be oversized, with the exception of BRD in 2009, for which it should be recommended to reduce interest expenses. In chart 2 we have illustrated the efficiency's dynamics, in parallel for the six banks under consideration.

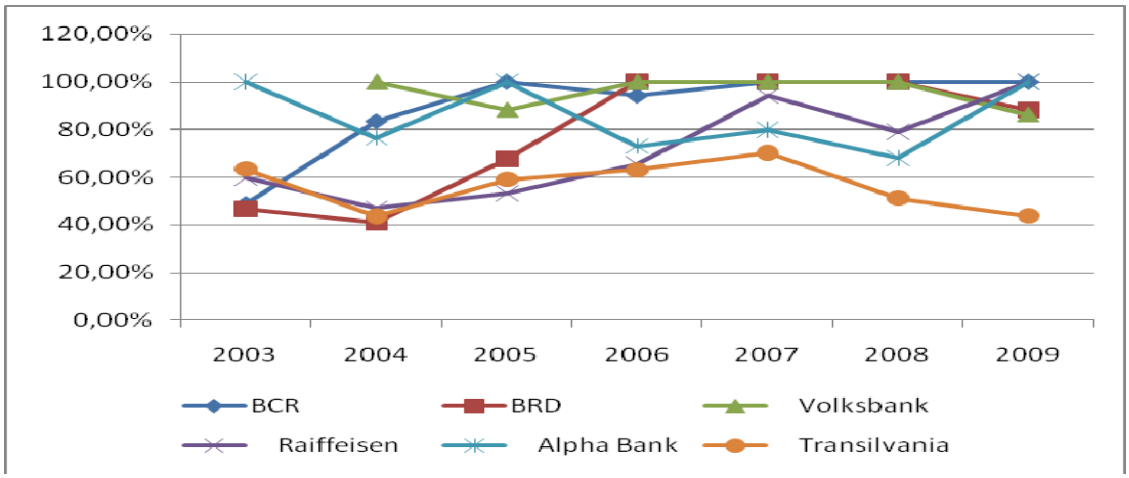


Figure 2. *The trend of efficiency scores*

From the credit institutions considered, BCR has the most appropriate strategy for the management of operating and interest expenses, ranking, since 2005, on the frontier of best practices. Volksbank is another bank that has made notable performances, the scores obtained placing it on the efficiency frontier or in the immediate vicinity (it is sufficient to reduce overall costs by 14% to become cost-effective). The most significant cost reduction should have been done between 2003-2005 at BRD, Banca Transilvania and Raiffeisen. The explanation lies in the strong focus, since 2003, on the retail segment, which has resulted in the rapid expansion of the territorial network of banking branches, with direct effects on staff expenses and fixed costs. We can argue, therefore, that, compared to the existing volume of lending and investment in financial assets, expenses have not been properly sized. It can be noted that, in the period under review, Transilvania Bank never placed on the cost-efficiency frontier, Alpha Bank had a sinuous, oscillating evolution of efficiency scores and Raiffeisen recorded a slow but progressive path towards the efficiency frontier, which it reaches only in 2009.

A number of studies in economic literature (Berger, DeYoung 1997, Williams 2004, Fiordelisi, Marques-Ibanez, Molyneux, 2010) attribute to bad management practices the cost-efficiency decline, arguing that credit institutions that operate in conditions of low efficiency are tempted to improve their financial performance through the practice of lax lending standards, inadequate monitoring of outstanding loans and of exposure to different categories of borrowers and economic sectors.

3. Competition in banking activity

Banking competition is a topic widely discussed, particularly in terms of attracting deposits rather than in terms of the loan portfolio. Empirical studies show that markets with fewer banks tend to have low interest rates on deposits and higher to loans, which implies reduced competition and negative effects on customers. So, the competition is important in banking as the main beneficiaries of the "correct" competition are the customers who will have access to products and services at lower costs and better quality. A fair level of competition is manifested by a reasonable rate of return for a bank's investors and by meeting the needs of depositors and borrowers at the lowest level of costs.

To answer the question how competitive is the banking system and which factors influence the competitive structure of this market, it is necessary to review the main empirical approaches.

The standard indicators used in empirical studies are:

1) The Structure-Conduct-Performance model (SCP), which is based on the degree of market concentration, namely the Herfindahl-Hirshman Index (HHI) of deposits and loans. It

shows to what extent changes in banking system's structure and concentration affect the behavior and banks' profits. The more concentrated a banking system, the greater the market share of a bank and its degree of inefficiency. For example, the average HHI for the European banking system is 1,800, and 870 in the case of Romania, which reflects the characteristics of a monopolistic market. The Nordic countries are characterized by a high degree of concentration, having an HHI level of 6,000 in 1998, while HHI's theoretical maximum value is of 10,000. Such an approach correlates the three components: structure, conduct and performance. The market structure is given by the interaction of supply and demand; the behavior is a variable depending on sellers, buyers, barriers to entry and the cost structure, while performance is expressed as profitability.

2) Lerner index is a measure of price increase for each unit of products sold. Applied to banking, this index shows how the interest rate related to financial resources (deposits, loans) changes, compared with the modification of loans and other banking products. It is calculated as the ratio between the difference in product's price and marginal cost and its price. The index takes values from 0 to 1; a maximum level of the index indicates a high market power, therefore reduced competition, and the zero one indicates a perfect competition. Value 1 shows that the bank had market power, so it drew financial resources at a very low cost, or, conversely, has offered banking products under a high rate of interest. Case studies on Russia's banking system show an index level of 0.24 for state banks and 0.21 for private banks. The value of the European banking sector index was 0.16.

3) The H-statistic index, proposed by Panzar-Rosse, is another measure of competition, indicating the extent to which changes in input prices lead to changes in output prices and total revenue. H statistic index can range from - ∞ to 1, and the interpretation is as follows:

• For $H \leq 0$, there is a monopoly competition, i.e., a single manufacturer (bank) has almost the entire market for certain types of products (deposits, loans). Such a situation is due to the imposition of barriers to entry to other players;

• For $0 < H < 1$, there is a monopolistic competition. The market structure is given by a small number of manufacturers and vendors offering different products and setting the price (interest rate) without affecting the market as a whole;

• For $H = 1$, the significance is that of perfect competition. In the market there is a large number of sellers and buyers of banking products, which cannot control market prices. Also, in the case of perfect competition, products are homogeneous and substitutable (customers can opt for banking products offered by another credit institution).

Bikker and Haaf (2002) had assessed the H statistic for banking systems of all continents both on an aggregate level but also considering the size of the banks. Their results can be summarized in the table below:

Table 2

Values of H statistic for different sized banks

	All banks	Small banks	Medium banks	large banks
Austria	0.87	0.93	0.89	0.91
Belgium	0.89	0.95	0.88	0.88
Denmark	0.36	0.34	0.75	1.16
Switzerland	0.58	0.54	0.92	1.01
Finland	0.78	0.67	0.76	0.70
France	0.70	0.59	0.79	0.89
Germany	0.63	0.59	0.70	1.03
Greece	0.76	0.41	0.66	0.94
Ireland	0.65	0.99	0.63	0.93

	All banks	Small banks	Medium banks	large banks
Italy	0.82	0.75	0.86	0.81
Luxembourg	0.93	0.94	0.95	0.91
Great Britain	0.64	0.41	0.85	1.20
Norway	0.77	0.80	0.75	0.71
The Netherlands	0.75	0.74	0.87	0.95
Portugal	0.83	0.84	0.84	0.91
Spain	0.62	0.64	0.59	0.66
Sweden	0.80	0.84	0.76	0.95
Australia	0.57	-0.14	0.70	0.68
Canada	0.62	0.74	0.63	0.60
South Korea	0.68	--	0.72	0.77
Japan	0.54	0.43	0.11	0.61
New Zeeland	0.86	--	1.13	0.86
United States	0.56	0.62	0.57	0.72
Averages	0.70	0.65	0.75	0.86
Minimum	0.36	-0.14	0.11	0.60
Maximum	0.93	0.99	1.13	1.20
Average European countries	0.73	0.70	0.79	0.91
Average non-European countries	0.64	0.41	0.64	0.71

Source: Bikker and Haaf (2002).

As it can be observed from the Table 2, the competition in the European banking systems is more pronounced compared to non-European countries while the rivalry between large banks is higher than the one between small and medium-sized credit institutions. The banking systems subject to perfect competition can be found in Austria, Belgium, Italy, and Luxembourg while Denmark, Switzerland, Japan and the United States are characterized by a more reduced level of competition.

About the competition in the Romanian banking system, an objective point of view is made by the Competition Council. In accordance with the evaluation made by this institution in the year 2009, the Romanian banking system has some characteristics. Thus, the increased importance of retail banking services, the huge growth of this segment led to a reconsideration of banking institutions' development strategies and to the diversification of financial products supplied to SMEs and individuals. Increasing the supply has surpassed the demand for retail services, differentially by type of banking services (credit cards, current accounts, bank loans, deposits), depending on household income, geographic area or level of education. The report for 2009 highlights the fact that, for banking operations were used, mainly, the current account and its related services; also, in the retail market were promoted the related products.

A new element in the analysis of the banking system is the degree of mobility of clients, which shows the share of customers who changed their banking institution within one year, and whose level is low compared to Europe due to unilateral amendment of contracts and due to insufficient and inconsistent information at which the customers have access. The provisions of Directive 2008/48/EC on credit agreements for consumers, it is show the importance that customers benefit from the opportunity to change their credit institution, which is perceived as a key factor in the competitive retail banking market.

The same report indicates that certain forms of cooperation are serious forms of violation of competition rules (banking cartels, bilateral and multilateral agreements with

preferential terms or the exchange of sensitive information about price, cost, customers and strategies). Relative to this issue, the Competition Council believes that the Romanian Association of Banks has provided sensitive information about strategies, interest, commissions and other confidential matters, which may imply a distortion of free competition in the Romanian banking system.

4. Empirical analysis of the competition in the Romanian banking system

With the purpose of empirically identifying the type of competition present in the Romanian banking system, we have computed the value of H-statistic proposed by Panzar-Rosse, which points the extent to which the price of banking products and services is influenced by changes in the prices of inputs. This index is defined as the sum of the price elasticities of interest incomes with respect to production factors used for generating the results.

The estimated equation can be written as:

$$\ln VDA = a + (b \times \ln CDP + c \times \ln SAL\_MEDIU + d \times \ln CH\_CAP) + f \times \ln FACT\_EXOGENI + e,$$

where VDA represents interest incomes divided to total assets, CDP is the ratio between interest expenses and total liabilities, SAL_MEDIU represents the ratio between salaries and the number of employees, CH_CAP is the ratio between capital expenses and fixed assets, FACT_EXOGENI represents a weighted average of certain factors describing the risk and size of a bank respectively the ration between equity and net loans and the log of total assets, while e is the error term. The value of H-statistic will be assessed by summing the elasticities of the factors, respectively the coefficients b, c and d. Essentially, the estimation will show the extent to which the medium yield of the assets is influenced by cost of attracting the resources, the medium wage paid to the employees, the expenses generated by the physical capital and a number of exogenous factors reflecting the risk and size of a bank.

In the empirical analysis, the period covered is 2003-2009 while the data is yearly and it refers to the first six banks of the Romanian banking system using total assets criterion. Giving the type of the observations, the estimation will be based in the method of least squares applied to panel data.

All the variables used in the analysis are stationary and the estimated equation can be written as (between [ ] is the value of the t statistics):

$$\ln VDA = (0.80 \times \ln CDP - 0.11 \times \ln SAL\_MEDIU - 0.17 \times \ln CH\_CAP) - 0.4 \times \ln FACT\_EXOGENI$$
$$[12.15] \qquad [-1.67] \qquad [-3.16] \qquad [-1.69]$$

All the coefficients are statistically significant at 10% while the value of 0.78 for R squared indicates that the explanatory variables properly describe the behavior of the independent variable. Thus, a rise of 1% of the cost of resources had generated an increase of 0.8% in the assets price, a rise of 1% of the medium wage had determined a reduction in asset yields of 0.11%, the increase of operational expenses by 1% had lead to a decrease of 0.17% in the assets prices while the advance of 1% in the risk and dimension of the bank was followed by the reduction of 0.4% in the assets yields. The negative relation between salaries and credit prices can be explained by the high growth rate of wages observed in the analyzed period which was only partially compensated by the increase in the productivity and could not be transferred into the price as a result of rising competition in the banking system. Also, the negative sign of operating expenses shows that, despite higher investments in the fixed assets

following the banking system expansion, the products prices could not be increased because of the rising competition.

The estimated model consistently reflects the evolution of the assets prices which is proven by the next graph plotting the actual and estimated values of the dependent variable:

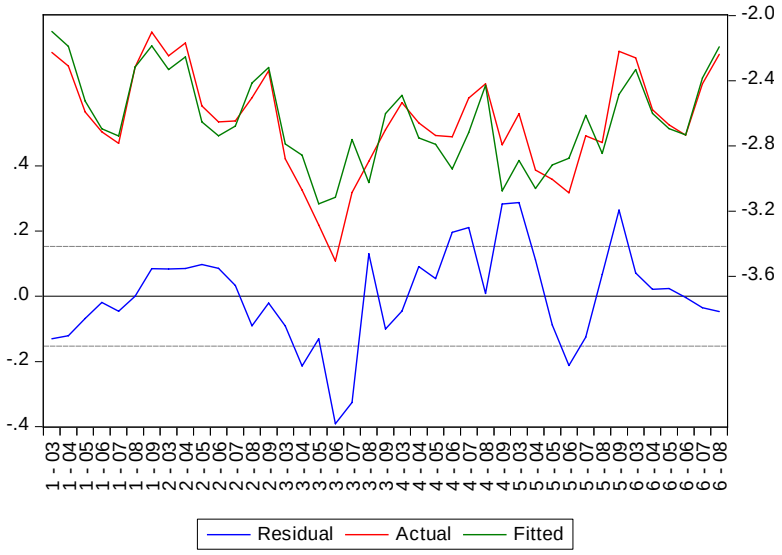


Figure 3. *Actual-fitted, residuals*

The sum of the elasticities is 0.52, suggesting a monopolistic competition according to the Panzar-Rosse approach. This type of competition is characterized by numerous banks of different sizes, hence not homogenous considering the volume of activities and the features of financial services offered. In this research, we had used the Panzar-Rosse approach to assess the competitive climate between banks of systemic importance. Therefore, we consider that the value of H statistic should be interpreted as reflecting oligopoly type competition. Thus, in the Romanian banking system there are relative few big competitors, which have in place business plans and risk strategies denoting strategic behavior substantiated not only according to their own politics and internal corporate government rules but also by observing the strategies of the other important competitors.

Concluding remarks

The competition and efficiency level of a banking system have an impact over the final consumer who will gain from lower prices and an increased quality of the services but also over the economy as a whole through the more efficient channeling of funds from people having a temporary surplus to the ones with profitable business opportunities.

In this research the efficiency level was measured through a non-parametric method, namely Data Envelopment Analysis (DEA) based on the assessment of efficiency scores pointing the extent to which banks have obtained the best possible outputs considering the inputs used. The results show an average level of cost efficiency between 56.4% and 95.75%, suggesting a moderate performance for the Romanian banking system.

The degree of competition was determined through H statistic, proposed by Panzar-Rosse, which has an estimated value of 0.52 that indicates an oligopoly type competition, a relative small number of banks controlling an important share of the banking system's assets.

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EXTERNAL DEBT SUSTAINABILITY, THE CASE OF ROMANIA: QAR MODEL

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Abstract. *In this paper I investigate the external debt sustainability using a quantile autoregression (QAR) model. I presented a methodology to separate periods of nonstationarity from stationarity ones, which allows us to identify various trajectories of external debt that are compatible with indebtness sustainability. I use such trajectories to construct a debt ceiling, that is, the largest value of external debt that does not jeopardize long-run indebtness sustainability. I make out-of-sample forecast of such a ceiling and I presented the debt ceiling as a "debt-warning system" which could be used by policy makers interest in keeping the external debt on a sustainable path. I illustrate the applicability of such econometric tool using Romanian data.*

Keywords: external debt; quantile autoregression local sustainability; global sustainability; gross domestic product.

JEL Code: F34.
REL Code: 8B.

1. Introduction

Besides the stability of the euro area, debt sustainability is one of the most interesting topics discussed in the current macroeconomic context. This topic is sensitive for countries in South-East Europe and beyond, whereas in recent years economic growth of these countries was based mainly on consumption and on increase in construction volume. External debt sustainability is measured by some ratios or indicators. For example, the ratio of total external debt to GDP is an important indicator. To achieve sustainability of debt the ratio of total external debt to GDP must be stabilized. External debt sustainability is a key element in analyzing the financial stability of a country's economy. The role of external debt sustainability increases especially when we are dealing with a country whose economy is in transition.

The liquidity crisis of the last decade have determined the Government experts, the experts from the central banks and those from the IMF to draft new methods for assessing the liquidity and solvability risks and to analyze the sustainability of the external debt. Studies on the sustainability of external debt are the preserve of international financial organizations and central banks. The starting point was the IMF framework on "sustainability assessment", paper approved in May 2002 by Timothy Geithner - Director of the IMF at the time, currently US Secretary of State Treasury. IMF experts used sensitivity analysis to highlight the movements of macroeconomic indicators that affect debt sustainability.

Other interesting studies on debt and external debt sustainability were written by: Wyplosz C. (2007) – alternatives to IMF approach: Value at Risk stress tests; Lima L. et al. (2006) – a quantile autoregression approach. They introduced the debt ceiling concept as a "debt warning system" to be used by policy makers interested in keeping the debt on a sustainable path; Yilanci V. and B. Özcan (2008) – a nonlinear approach the Threshold Autoregressive Model; Roubini N. (2001) – a qualitative assessment of the debt sustainability: as long as the debt ratio to GDP is stabilized over the medium term, it is considered as

sustainable regardless of its level; i.e. a debt to GDP ratio of 150% is as sustainable as a debt to GDP ratio of 50%.

The quantile autoregression model was developed by Koenker. In 2006 Koenker and Xiao released a working paper that presented for the first time the QAR model methodology. The QAR approach provides a way to directly examine how past information affects the conditional distribution of a time series. This feature of the QAR model is fundamental to the methodology proposed in this paper since our measure of debt ceiling ($\bar{D}_t$) will be nothing else than the upper conditional quantile of the external debt that satisfies the transversality condition of no-Ponzi game.

To the best of my knowledge there is just a study of Albu L. and E. Pelinescu (2003) which investigate the sustainability of external debt of Romania.

The objective of my study is to test for sustainability of Romania's external debt by using a method which examines global and local stationarity simultaneously. These tests are based on a model of quantile autoregression.

The rest of the study is organized as follows. The second part discusses the macroeconomic and econometric methodological issues. The third part presents the data problems and the empirical results. The most important aspects dealt with are pointing out that the external debt is usually characterized by local sustainability, but not always by global sustainability. The conclusions are specified in the fourth part.

2. Methodological issues

The approach used to analyze sustainability consists in testing if the external debt is a stationary process. A necessary and sufficient condition for sustainability is that the discounted external debt-GDP ratio should be a stationary zero-mean process. External debt is considered sustainable if the country's intertemporal balance constraint is satisfied.

2.1. Theoretical model

According to Uctum and Wickens (2000), a necessary and sufficient condition for sustainability is that as *n* goes to infinity, the expected value of the discounted debt-GDP ratio converges to zero. This condition is usually known in the literature as the transversality condition (or no-Ponzi-scheme condition), and can be summarized by:

$$\lim_{n\to\infty} E_t \frac{d_{t+n}}{(1+\rho)^n} = 0 \quad (1)$$

2.2. Econometric model

The papers elaborated in 2006 by Koenker and Xiao introduced the so-called quantile autoregression (QAR) model. This model is a random coefficient time series model whose autoregressive coefficients parameters are functionally dependent and may vary over the quantiles $\tau \in (0; 1)$. QAR model expands the modeling options for time series that display asymmetric dynamics or local persistency.

In this paper, I show how I can separate nonstationary observations from stationary ones by using the QAR model. Also, I test both global and local sustainability, with global sustainability referring to a set of quantiles and local sustainability analyzing the behavior of Romania's external debt at a fixed quantile. The latter allows us to identify trajectories of the external debt (indebtness policies) that are not consistent with external debt sustainability in the sense that if they were allowed to persist indefinitely, they would eventually violate intertemporal restrictions.

2.2.1. The quantile autoregression model

Let $\{U_t\}$ be a sequence of iid standard uniform random variables, and consider the *p*th order autoregressive process,

$$y_t = \theta_0(U_t) + \theta_1(U_t)y_{t-1} + \cdots + \theta_p(U_t)y_{t-p} \quad (2)$$

where θ_0's are unknown functions [0; 1] →R that I will want to estimate. I will refer to this model as the QAR (p) model.

The QAR (p) model (2) can be reformulated in a more conventional random coefficient notation as,

$$y_t = \mu_0 + \beta_{1,t}y_{t-1} + \cdots + \beta_{p,t}y_{t-p} + u_t \quad (3)$$

An alternative form of the model (3) widely used in economic applications is the ADF (augmented Dickey-Fuller) representation:

$$y_t = \mu_0 + \alpha_{1,t}y_{t-1} + \sum_{j=1}^{p-1}\alpha_{j+1,t}\,y_{t-p} + u_t \quad (4)$$

In this model, the autoregressive coefficient $\alpha_{1,t}$ plays an important role in measuring persistency in economic and financial time series. Under regularity conditions, if $\alpha_{1,t} = 1$, y_t contains a unit root and is persistent; and if j $|\alpha_{1,t}| < 1$, y_t is stationary.

2.2.2. Estimation

Provided that the right hand side of (2) is monotone increasing in U_t, it follows that the τth conditional quantile function of y_t can be written as,

$$Q_{y_t}(\tau|y_{t-1}, \ldots, y_{t-p}) = \theta_0(\tau) + \theta_1(\tau)\, y_{t-1} + \ldots + \theta_p(\tau)\, y_{t-p}, \quad (5)$$

In the above model, the autoregressive coefficients may be τ-dependent and thus can vary over the quantiles. If the symmetric absolute value function yields the median, maybe we can simply tilt the absolute value to produce the other quantiles. This logic suggests solving

$$\min_{\{\theta \in R^{p+1}\}} \sum_{t=1}^{n} \rho_\tau(y_t - x_t^T\theta)$$

where the function ρ_τ is define as:

$$\rho_\tau(u) = \begin{cases} \tau u, & u \geq 0 \\ (\tau - 1)u, & u < 0 \end{cases}$$

2.2.3. Hypothesis testing

a) Autoregressive order choice

Equation (2) gives our *p*th order quantile autoregression model. I now present how to choose the optimal lag length *p*. I follow Koenker and Machado (1999) in testing for the null hypothesis of exclusion for the *p*th control variable τ.

$$H_0: \theta_p(\tau) = 0, \text{ for all } \tau \in T \text{ for some index set } T \subset (0,1). \quad (6)$$

Koenker and Machado (1999) state that the null hypothesis can be tested (6) using a related version of the Likelihood process for a quantile regression with respect to several quantiles. I want to carry out a joint test about the significance of the *p*th autoregressive coefficient with respect to a set of quantiles T (not only at fixed quantile). Koenker and Machado (1999) suggests using the Kolmogorov-Smirnov type statistics for the joint test.

b) Global sustainability

The concept of global sustainability states that episodes of external imbalances resulting from indebtness policies not compatible with long-run external debt sustainability

must be offset by periods of political responsibility so that the intertemporal balance constraint holds in the long run. In this context, Lima L. et al. (2006) introduce tests for global stationarity and zero unconditional mean.

b.1) Global stationarity

An approach to test the unit root property is to examine the unit root property over a range of quantiles $\tau \in T$, instead of focusing only on a selected quantile. I may, then, construct a Kolmogorov-Smirnov (KS) type test based on the regression quantile process for $\tau \in T$. Koenker and Xiao (2004) proposed a quantile regression based statistics for testing the null hypothesis ($H_0: \alpha_{1,\tau} = 1$) of a unit root. Lima L. et al. (2006) suggest approximating the limiting distribution of QKS under the null hypotheses by using the residual based block bootstrap procedure (RBB).

b.2) Unconditional mean test

In order to test whether or not the unconditional mean of the process is zero, Lima L. et al. (2006) decided to test directly the null hypothesis $H_0 : \mu_y = 0$ using a resampling method for dependent data named Nonoverlapping Block Bootstrap (NBB), even if the first natural attempt it would be to ignore the existence of asymmetric dynamic and estimate a symmetric regression, which is not a valid option for this model. The key feature of this bootstrap method (NBB) is that its blocking rule is based on nonoverlapped segments of the data, making it able to simulate the weak dependence in the original series y_t.

c) Local sustainability

To test local sustainability Lima L. et al. (2006) use so-called Koenker-Xiao test for the analysis of local unit root behavior. The local unit root hypothesis in the ADF representation is:

$H_0: \alpha_1(\tau) = 1$, for selected quantile $\tau \in (0,1)$

In order to test such a hypothesis, Koenker and Xiao (2004) proposed a statistic similar to the conventional Augmented Dick-Fuller (ADF) t-ratio statistic. The t_n statistics is the quantile autoregression counterpart of the ADF t-ratio test for a unit root.

3. Empirical results

3.1. The database

The methodology presented in this paper is applied to analyze the discounted Romanian external debt to GDP ratio. All data are quarterly and are obtained from the National Bank of Romania, National Institute of Statistics and Eurostat. Our sample covers the period 1990 Q4 to 2010 Q1 (78 observations). The undiscounted debt represents external debt series compiled by Statistics Department of the National Bank of Romania, in percentage of GDP. The discounted debt is given by the undiscounted debt series multiplied by a stochastic discount factor.

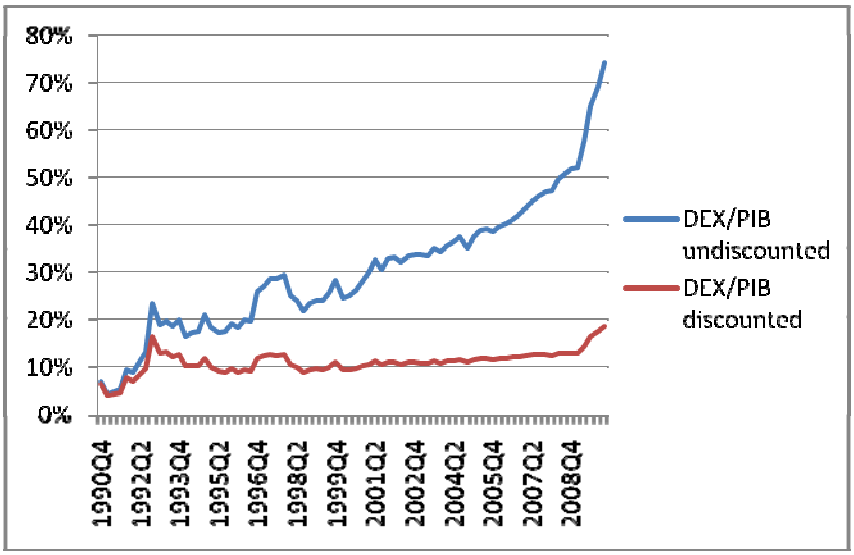

Figure 1. *Romanian external debt-GDP ratio series*

The stochastic discount factor a_t, as previously mentioned in the theoretical model, is generated from ρ_t (the real interest rate adjusted for GDP growth rate), which depends on the inflation and nominal interest rates, and GDP growth rate.

The inflation rate π_t is the inflation rate of the euro zone and the nominal interest rate i_t is Euribor for three months. Regarding GDP growth rate η_t, I generate a quarterly series based on the quarterly seasonally adjustments GDP of the euro zone, which is released by Eurostat.

3.2. Results

3.2.1. Autoregressive order choice

First, I determine the autoregressive order of the QAR (p) model (5) using the Kolmogorov-Smirnov test based on LR statistics, following Koenker and Machado (1999). I start estimating the quantile regression below with p = pmax = 8.

Table 1

Choice of the autoregressive order

excluded variable	$\sup_{\tau \in T} L_n(\tau)$	5% critical value	10% critical value	H_0	Result
y_{t-2}	4.40	9.31	7.63	$\theta_2(\tau) = 0$	do not reject
y_{t-3}	8.76	9.31	7.63	$\theta_3(\tau) = 0$	do not reject
y_{t-4}	5.72	9.31	7.63	$\theta_4(\tau) = 0$	do not reject
y_{t-5}	10.81	9.31	7.63	$\theta_5(\tau) = 0$	Reject
y_{t-6}	21.60	9.31	7.63	$\theta_6(\tau) = 0$	Reject
y_{t-7}	4.78	9.31	7.63	$\theta_7(\tau) = 0$	do not reject
y_{t-8}	4.96	9.31	7.63	$\theta_8(\tau) = 0$	do not reject

Since the 7^{th} and 8^{th} order are not relevant, I proceed by analyzing if the sixth order covariate is relevant. I verify that the sixth autoregressive variable cannot be excluded.

Thus, the optimal choice of lag length in our model is p = 6 and this order will be used in the subsequent estimation and hypothesis tests presented in this paper. In summary, our econometric model will be:

$$Q_{y_t}(\tau|y_{t-1}, ..., y_{t-p}) = \theta_0(\tau) + \theta_1(\tau)\, y_{t-1} + ... + \theta_6(\tau)\, y_{t-6} \quad (7)$$

and the associated ADF formulation is:

$$y_t = \mu_0 + \alpha_{1,t} y_{t-1} + \alpha_{2,t}\Delta y_{t-2} ... + \alpha_{6,t}\Delta y_{t-6} + u_t \quad (8)$$

After performing the exclusion test the result is a QAR (6) model.

3.2.2. Global sustainability

The necessary and sufficient condition for the intertemporal balance constraint to hold is that the discounted external debt-GDP ratio, represented by y_t, must be a stationary zero-mean process. If this happens, then the Romanian external debt will be globally sustainable.

a) Global stationarity

In order to test for global stationarity, I need to test the null hypothesis ($H_0: \alpha_{1,t} = 1$) using the so-called Quantile Komogorov-Smirnoff (QKS) test. I considered 1,000 bootstrap replications.

The results in Table 2 suggest that, at worst, the discounted Romanian external debt is globally stationary at 10% of significance, because I reject the unit root null hypothesis with significance level of 10% for all values of b.

Table 2

Results for the global stationarity test

Block length b	QKS	5% critical value	10% critical value	$H_0: \alpha_{1,t} = 1$
8	24.9508	26.1774	20.9727	reject at 10%
10	24.9508	24.2553	19.9912	reject at 5%
12	24.9508	25.1983	20.5405	reject at 10%
14	24.9508	22.2265	17.5303	reject at 5%
16	24.9508	19.9344	16.7877	reject at 5%

b) Unconditional mean test

Now, I test the null hypothesis that the discounted debt process has zero unconditional mean.

Table 3

Summary of results for the unconditional mean test

Block length b	t	2.5% critical value	97.5% critical value	$H_0: \mu_y = 0$
8	39.86	30.45	107.03	do not reject at 5%
10	39.86	31.76	91.66	do not reject at 5%
12	39.86	30.26	81.68	do not reject at 5%
14	39.86	28.87	85.61	do not reject at 5%
16	39.86	32.03	83.88	do not reject at 5%

I conduct a t-test for the unconditional mean and use the NBB resampling method with 1,000 replications to compute 5% critical values.. The reported results suggest that the unconditional mean of the autoregressive process is not statistically different from zero. This result associated with the QKS result for global stationarity present evidence that the external

debt is globally sustainable at 10% of significance and not necessarily with significance level of 5%.

3.2.3. Local sustainability

To check if the Romanian external debt is locally sustainable I need a way to separate periods of stationarity from periods where y_t exhibits a nonstationary behavior. Lima L. et al. (2006) solved this problem using QAR approach. They introduced the critical conditional quantile.

Table 4

Results for local sustainability test with significance level of 5% and 10%

τ	$\hat{\alpha}_1(\tau)$	$t_n(\tau)$	5% critical value	$H_0: \alpha_1(\tau) = 1$	10% critical value	$H_0: \alpha_1(\tau) = 1$
10	0.92791	-3.41627	-2.65767	reject	-2.33988	Reject
11	0.92985	-3.3176	-2.32266	reject	-1.96977	Reject
12	0.93511	-3.13971	-2.41967	reject	-2.07967	Reject
13	0.93545	-3.19325	-2.66139	reject	-2.34407	Reject
14	0.93731	-3.08016	-2.53127	reject	-2.1943	Reject
15	0.95121	-2.27125	-2.49427	do not reject	-2.15427	Reject
16	0.95121	-2.58671	-2.47249	reject	-2.13249	Reject
17	0.95729	-2.66275	-2.52849	reject	-2.19114	Reject
18	0.96174	-2.1478	-2.56012	do not reject	-2.22728	do not reject

In order to identify the critical conditional quantile of the Romanian external debt, I need to test the null hypothesis $H_0: \alpha_1(\tau) = 1$ at various quantiles by using the t-ratio test $t_n(\tau)$, with the zero-mean restriction at 10% of significance imposed in the ADF representation. The critical quantile found using Romanian external debt data is equal to 0,17. Also, I identified the critical conditional quantile of the Romanian external debt with significance level of 5%. The results reported in Table 4 strengthen macroeconomic conclusion, that at a confidence level of 95% the constraints are stronger than at a confidence level of 90%. The graphic representation of the two critical conditional quantile highlights that y_t exceeds once the 17^{th} conditional quantile and twice the 14^{th} conditional quantile (Figure 2).

3.2.4. Debt ceiling

If y_t the discounted external debt GDP ratio is a stationary zero-mean process with significance level of 10%, which is a necessary an sufficient condition for global sustainability, I use the critical conditional quantile as a debt ceiling ($\bar{D}_t$), following Lima L. et al. (2006) methodology.

The debt ceiling of the Romanian external debt-GDP ratio is constructed through in-sample forecast of the 17^{th} and the 14^{th} critical conditional quantile, given by the ADF formulation:

$$\bar{D}_t = \hat{\alpha}_1(\tau_{crit})y_{t-1} + \hat{\alpha}_2(\tau_{crit})\Delta y_{t-1} + \ldots + \hat{\alpha}_6(\tau_{crit})\Delta y_{t-5}$$

The in-sample path of the debt-ceiling is nothing else but the in-sample forecast of the 17^{th} critical conditional quantile and of the 14^{th} critical conditional quantile. In fact, the debt ceiling is nothing else than the critical conditional quantile of the discounted external debt-GDP ratio, $\bar{D}_t = Q_{y_t}(\tau_{crit}|F_{t-1})$. The proposed debt ceiling is a simple way to separate paths of external debt that are not sustainable from the ones that satisfy the long-run transversality condition.

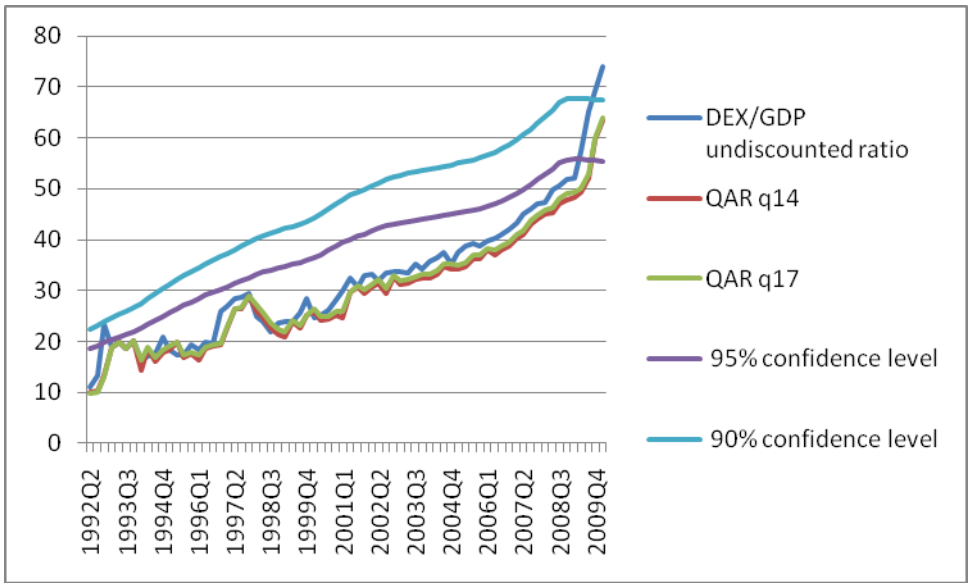

Figure 2. *Undiscounted DEX/GDP ratio, fixed quantiles and debt ceilings in undiscounted equivalents*

Comparing both time series y_t and $Q_{y_t}(\tau_{crit}|F_{t-1})$ one can compute the statistic H, which represents the percentage of periods in which y_t exhibits a (local) nonstationary behavior. H is the relative frequency of nonstationary periods and represents the percentage of violations of the transversality condition still compatible with long-run external debt sustainability for the in-sample forecast. Despite the discounted external debt of Romania is globally sustainable with a significance level of 10%, it is obvious that in the last five years there was no episode of debt adjustment policies. Next, I present the out-of-sample forecasts of the Romanian external debt, based on the methodology of the recursive generation of conditional densities of y_t, introduced by Koenker and Xiao (2004). The out-of-sample forecasts were constructed with a maximum forecast horizon $s_{max} = 20$ periods, with 1,000 trajectories for the y_t process.

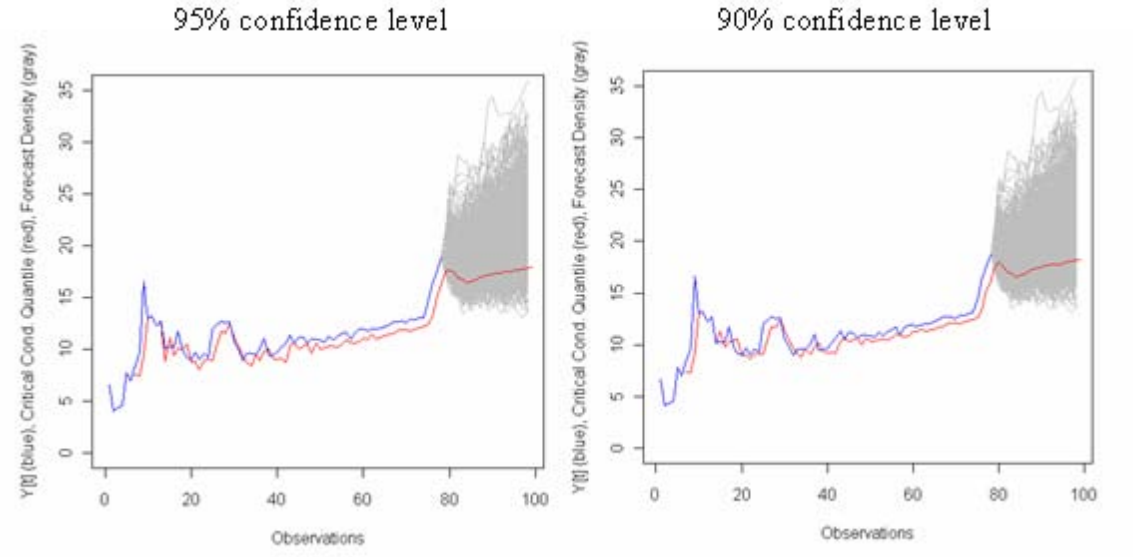

Figure 3. *In-sample and out-of-sample forecast of the critical conditional quantile (graphs obtained in R)*

The red line representing the forecast debt ceiling which is the upper trajectory that satisfies the transversality condition of non Ponzi scheme. As the red line is not decreasing

and it does not converge to zero in the long run, a decision regarding the indebtedness policy must be taken. The forecast debt ceiling will guide the decision maker to decide or not to take some action. Even if the Romanian external debt is globally sustainable with significance level of 10%, the red line does not show a downward slope (Figure 3, which was generated using R code). This happens because since March 2009 we have been the witnesses of the longest episode of local unsustainability of the Romanian external debt in the last two decade.

Putting all together, the discounted Romanian external debt is globally sustainable with a significance level of 10% despite the fact that local unsustainability can be found at some fixed quantiles. But the length of the last episode of local unsustainability through which Romania is passing may determine that the Romanian external debt will no longer be sustainable even with a significance level of 10%.

4. Conclusion

In this paper, I have empirically explored the question of whether the indebtness policy in Romania is sustainable in the long-run using data on discounted external public debt for the period from 1990Q4 to 2010Q1. Following recent econometric studies that suggest the existence of regime shifts of external debt (Yilanci, Özcan, 2008); I use a quantile autoregression model proposed by Koenker and Xiao (2004) to test if the data provides evidence of unsustainability in the Romanian external debt.

The indebtness policies of Romania are unsustainable when debt ceiling is exceeded. In the last two decade we have been witness of two major local unsustainability episodes, identified by my model: in the 1992Q4 when the government nationalized the foreign currency of legal persons after a very high increase of the external debt ratio over a quarter; since March 2009 when in the context of the GDP decreasing the external debt increased in absolute terms by almost the same as in 2007 and 2008, which was a period marked by a GDP growth of at least 6% per year.

The Romanian external debt is not globally sustainable with significance level of 5% and is globally sustainable with significance level of 10%, even if the debt ceiling does not show a downward slope. If in the next period will preserve the macroeconomic context of the last quarters, it is possible that external debt will no more be sustainable at a level of significance of 10%. The measure of debt ceiling presented in this paper aims to contribute monitoring the indebtness level, developing a "debt-warning system" that helps the macroeconomist to identify "dangerous" debt paths, deemed to be unsustainable.

Further theoretical developments of economic models that could be used to explain the existence of a band of sustainability, in addition to further empirical applications, would be very fruitful.

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THE PROCESS GLOBALIZATION OF WORLD ECONOMY AND ROMANIA

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Abstract. *Globalization is the process that concentrated the public and academic attention in the last decade. Drivers and outcomes of assumed transformation were submitted to a through analysis. Its results were diverse enough to polarize opinions, but not enough for distinguish between contradictory opinions. Among the controversial aspects we bring into discussion the impact on food production and processing, sector that is up taken by corporations in name of hygiene and modernity ideals and on the harm of the diversity and sustainability. We consider that from these points of view the trends are inscribed on an unfavorable direction that will lead to the irreversible degradation of environment and dehumanization of social categories with precarious material situation.*

Keywords: economic globalization; food security; food processing; standards; poverty.

JEL Codes: P45, P48, Q56.
REL Codes: 10A.

Introduction

Globalization fascinates through its overall presence and decisional impenetrability. This is the message transmitted through the discourses launched by governmental and corporate representative. In other terms, it is useless to try to stop globalization, its unfolding being "natural", as an outcome of economic relations' evolution. Meanwhile, it is unlikely to be protected from the effects of globalization, regardless to the position – pro or counter – adopted by you. In these conditions it is therefore justified to ask a number of questions regarding the consequences that will result from globalization, and further to clarify which are the intervention points for those that will be found in the unacceptable quadrant.

Although globalization is interpreted in variety of registers, the economic dimension tends to dominate. The expansion of influence sphere for corporations and government has an obvious economic driver. Numerous papers (Negreponti-Delivanis, 2002, Stiglitz, 2003, Popescu, Bondrea, 2004, Bran, 2006) consider that the current globalization process is not more than an economic reply of colonization. If at that time power relations were more important, especially in army power, today the size of the market is taking the lead.

Market saturation in developed countries is discouraging for the most creative product and service designers. Therefore, complying with the rigor of economic performance – measured by profit, dividends, economic efficiency etc. – supposes an increase of production that defies the economic cycles of the enterprise. In order to face such requirements, the expansion on new markets is no more an option, but an obligation.

Dinu (2007) states that "if economy remains what it is, the human universe is definitely rationalized, marketisation is absolute". From here it is justified to expect the

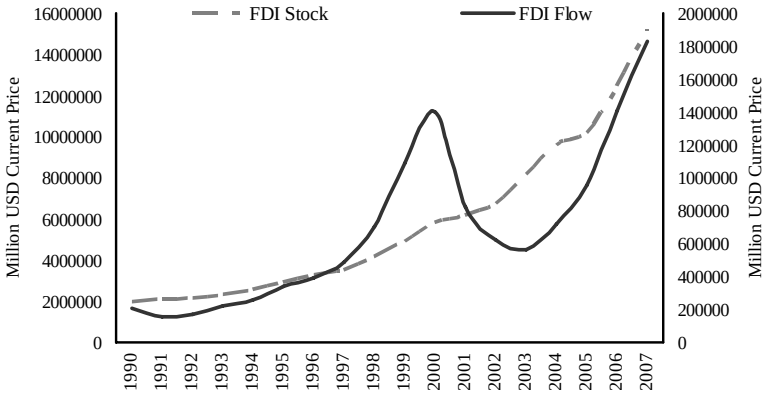
continuation of economic globalization, but also it is legitimate the seek knowledge about consequences.

1. Economic globalization – quantitative patterns

Globalization is defined as the process of intensifying the interdependencies among markets and world businesses. This process accelerated dramatically in the last two decades as a result of reduced transportation costs for both goods and people, and of reduced policy barriers to trade and investment on the part of the public sector. Frankel (2000) gave some metrics of these progresses. Thus the air transport revenue per passenger mile almost halved between 1930 and 1990. He also pin point that jet air shipping and refrigeration contributed significantly to important changes in the structure of goods that are available for international trading.

The most common understanding of globalization envisages the development of global financial markets, increase of multinational enterprises, enhanced influence of these on national economies, globalization of information and culture. Social and economic life mirrors globalization by changes such as: global nature of science and technology; global marketing; world financial system; communication infrastructure; world institutional framework (Bran, Ioan, 2009).

Figure 1 illustrates how foreign direct investment (flow and stock), used most frequently as an indicator for globalization, evolved in the last decades.



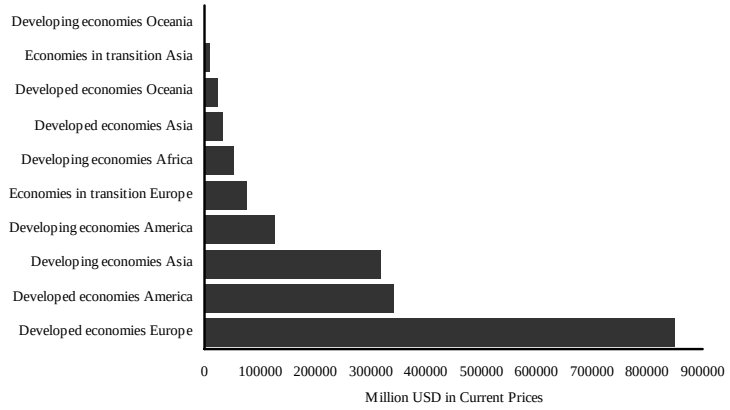
Source: UNCTAD.

Figure 1. *Evolution of foreign direct investment in the last decades*

Although the flows of foreign direct investment (FDI) recorded a visible fall after 2001, probably related to the intensification of security measures after the terrorist events occurred in New York, the stock of FDI increased continuously between 1990 and 2007. In fact, the stock of FDI increased in this period almost nine times, being 8.84 times higher in 2007 than in 1990.

According to an analysis made by UNCTAD (2008), developing economies and economies in transition are recovering some of the gap between them and developed countries for FDI. Thus, while FDI inflows in developed countries rose by 45 per cent, well over the rate of the previous two years, to reach 857 billion USD, flows to developing countries and transition economies of South-East Europe and the Commonwealth of Independent States (CIS) attained record levels of 379 billion USD and 69 billion USD, respectively. The United States regained its position as the largest single host country, followed by the United Kingdom and France. Among developing economies, apart from traditional largest recipient as Hong Kong (China) and Singapore, Turkey ranked fourth after large FDI increase in 2006, while in the transition economies, inflows doubled to 29 billion USD in the Russian Federation. The European Union (EU) as a whole remained the largest host region with 531 billion USD

accounting for 41 per cent of total FDI inflows in 2006, followed by North America with 244 billion USD or an 88 per cent increase from 2005. South, East and South-East Asia with 200 billion USD became the third largest recipient region, accounting for 15 per cent of total FDI inflows (Figure 2).



Source: UNCTAD.

Fig. 2. *Regional repartition of regional FDI flows*

These quantitative data confirm the alert path of economic and financial globalization. Although there are controversies regarding the significance of globalization, this information is enough to assure us that economic globalization is not a chimera, but a reality. Certainly, discussions regarding the drivers of such evolution remain open.

2. Agriculture, food production, and economic globalization

Food production represented one of the first challenges for the global community. Thus, at the beginning of the 1970s, the main concern was the accelerated demographic growth against the food producing possibilities. Milestone works such as the reports of the Club of Rome (*Limits of growth, Getting out from the age of wastage, Food for six billion*) attempted to draw the map of global issues and to formulate solutions. After around four decades, global population is almost seven billion and the food crisis is recognized by international organizations – FAO – and acutely experienced by states of the third world. On the other hand, there are regions that face serious problems due to over-production where governments struggle to apply policies for ceiling agricultural production, especially food production. For instance, the Common Agricultural Policy of the EU provides financial support for farmers that left un-cropped their agricultural land (Popescu, 1999). The paradoxical situation created by these contrasts is explained by blaming economic mechanisms and information asymmetry, among solution being proposed the access on global markets and increasing competitiveness.

Taking in account the patterns of food production and consumption, we consider that the driver of such recommendation is not to solve the food crisis, but to secure high and constant profits for the companies of agro-food supply chains from the developed countries. We will demonstrate this hypothesis based on information regarding food and agricultural production in developing countries.

Shiva (2000) formulates an equivoque lacking answer to the question: *Who is feeding the world?* This answer is: women and small farmers. By all means, in the XXIst century we would expect answers that incorporate the fulminatory technological progress of the agricultural sector, meaning answer that comprise super-intensive crops, irrigated crops, genetically modified crops, high productivity hybrids etc. It seams that these variants are important not for food production, but for profit making.

The rich diversity and sustainable production systems are more important, in Shiva's (2000) opinion for food production than the intensive systems based on crop uniformity. The

benchmark for results assessment provides the explanation. Thus, these are evaluated, in economic terms, considering the yield. In case of unique crops, high yields will be obtained. In case of diversified crop structure, the yield will be low, but the outcome (the total of yields) is comparable with the ones of intensive agriculture.

Peasants from Maya produce only four tones of corn per hectare, but the total food outcome is forty tones per hectare if it is accounted the entire diversity of food that is harvested (leguminosae, fruits, vegetables etc.). In Java, the small farmers crop 607 species on their gardens. In the sub-saharian Africa, women crop 120 different plant species alongside the intensive crops and these yields represent the main food supply. A garden from Thailand hosts 230 species. Rural families in Congo consume the leaves of 50 tree species. In Nigeria, 2% of the cropped area provides half of the total production. In Indonesia, private gardens contribute with 20% to the family income and cover 40% of the food needs. Research published by FAO shows that small agricultural holdings with high biodiversity have larger productivity than the super-intensive crops.

On the other hand, seed producing companies lured local farmers with the promise of fabulous gains if they drop the traditional practices. Shiva (2000) is astonished then she confesses the tragic end (suicide) due to becoming unable to pay the credits contracted for "white gold" seeds (genetically modified cotton) and, further, for the pesticides needed for controlling some highly unstable crops.

Another interesting case is the one of the "golden rice", meaning the genetically modified rise that provides vitamin A. It was introduced departing from the premise that without genetic modification the A vitamin deficiency cannot be fought for. However, nature provides a variety of A vitamin sources (false premise), but it is more important that farmers become dependent to the seed provider, which in this way has secured a relatively safe and large market for its products.

Economic globalization leads to the concentration of seed producing industry, increased pesticide consumption and high debts for farmers. Globalization of industrial agriculture which is unsustainable sweeps away income sources for small farmers by a combination of currency devaluation, increased costs, and high prices for products. Today food producers gather only a small part of the incomes earned before the entrance of modern technology. In India, prices decreased with two thirds for coffee and with more than 30% for oilseeds. Fact is, in a World Bank report it is admitted that behind consumption prices' polarization there are the large trading companies.

3. Processing of agro-food products – the exclusivity of global norms

According to a study made by the American food giant McKinsey, in India only 1% of the food production is processed. For this corporate actor this information prefigures huge profits. What is separating company from these profits is how the food production is regulated in India. In case that in the name of hygiene, food safety, correct nutrition or other resembling formula that express the collective (why not global) good there are applied a number of standards with restrictive effects, the company that holds the compliance securing technologies will become the replacer of loving family dedicated women hands.

In 1998, small scale food oil processing was forbidden in India by a "packaging order" that made the open oil selling illegal. The oil should be packed in plastic or aluminum. The measure led the enclosing of artisanal oil processing units and of cold presses. Meanwhile, the market for a variety of oils was destroyed – mustard, sesame, groundnuts, coconuts. The livelihood of 10 million people was affected. Further, the industrialization of flour production will impact on 100 million livelihoods. For these lives change means poverty. For us, imposing packaging standards means wasted resources for packages, contamination of the environment with packages, and lost access to diversified artisanal products.

Globalization of food system destroys the diversity of local gastronomic culture and local food economy. There is spreading a dangerous "monoculture" of fresh products:

everything that is fresh and made by hand is unsafe for health. Hands are considered the most important vectors for food contamination, so that they have to be replaced by corporate machines, which are safe and sterile.

Reduction or even removal of import restrictions makes the final hit for local food production and processing. A risk is represented the entrance of contaminated food which endanger local livestock. Among the unrestricted imports there are animal carcasses and various wastes that bring the risk of spreading for severe illnesses (for instance, the mad cow disease). Date from the US centre of Disease Prevention demonstrate that modern processing systems are not prevented from contamination issues. Once with the market expansion for the products of these systems the spectrum of contamination will also expand.

Conclusions

The benefits of globalization are represented by increased efficiency in resource allocation, respectively reducing losses. For globalization supporters, this statement has a universal applicability. From a more moderate perspective, the translation is as follows: globalization will bring benefits and costs. In other words, not every body will benefit the increased efficiency. At the opposite pole, globalization opponents state that globalization will bring benefits only for those who already have control on resources, the riches, and costs for the ones who already bear major scarcities – water, space, food, education, decent salaries etc. The paper attempted to bring an argument that help to outline the consequences of globalization, considering as premise, arguably, that globalization is inescapable. The contrary would be that globalization is avoidable, but those who could decide avoiding it are precisely the ones who benefit from it.

According to quantitative data, economic globalization is a reality. The analysis of FDI dynamic and structure reveals the fact that the process is becoming more and more intense and comprises a larger and larger number of states. Against one of the first issues addressed at global level – food security – globalization's influence could be considered unfavorable. Thus, due to globalization, access to food is restricted and traditional production and processing methods and means are forbidden in order to make room for modern technologies, trusted for food safety.

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EXPLOITATION THE GLOBAL FORCES AND PAUPER WORLD

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Abstract. *In the current socio-economic and political context, dominated by financial crisis erupted in various parts of the worlds, by scandals regarding the peculation of helps in the purpose of own politico-strategic interests, the study presents some general considerations and solutions concerning the social impact generated globally, as well as and the role regarding the implication of the international institutions in the view of favorable resolution of the process of economic, financial and banking restructuring – key factor for achieving the Development Objectives assumed at the Millennium Summit.*

Keywords: financial crisis; poverty; lender of last resort; international financial organisms; economic-financial solutions.

JEL Codes: F01, F 33-34-35, G01, I39.
REL Codes: 10C, 10I, 11A, 11Z.

1. General considerations

The monetary and financial phenomena have experienced significant changes in the recent years, but the idea of stability, at national and global level, has been a constant in the monetary policy over time. The institution of the financial monetary systems opened the inflation's gates and budgetary deficits, and the responsible factors didn't manage to promote the most adequate policies and regulations to restore the monetary order, considered vital in the economic theory of the last century.

2. The global financial crisis, risk management and social impact

In the world of finance, the risks are supplying each other: their faults of an institution or of a specific segment of market can attract both nationally and internationally, which generates therefore major issues that threaten the financial and economic stability. The risk of a system is a much more aggressive presence in the recent years, as a result of the globalization process, of penetrating the innovations and modern technologies in the financial domain, in the context of running a huge volume of transactions that create multiple links under the aspect of operations, liquidities and credit among financial institutions from worldwide.

"Today there is no system to monitor the process of globalization which is internationally provocative advancing. We have global governance, without having a global government. In exchange, for 50 years we have a system of international institutions, like the World Bank (WB), International Monetary Fund (IMF), World Trade Organization (WTO), which are responsible for various segments of the process: development, commerce, financial

stability. The way in which are led this economic organizations is extracting its substance from the way in which they have developed over the years; not democratic, nontransparent, dependent by the big interest, based on the poor countries", said Dr. Joseph Stiglitz, Nobel Laureate in Economics.

The WB has long proclaimed the dream of a "free world of poverty". Similarly, IFM is one of those who might want a "free world of financial crises". These are crucial and challenging objectives, but too narrow for the XXI century.

Despite the achieved progresses in the recent decades, the extreme poverty prevails in the countries with low incomes, continuing to be a serious problem at the level of international community. It was demonstrated that a rapid and sustainable increase of the incomes per capita is an essential condition that may relate the significant reduction of the poverty in the period 1990 – 2015 – one of the Development Objectives of the Millennium (DOM) set by the United Nations. But such an increase is driven by the international liberalization of the international changes, advisable economic policies solid legal systems and institutions, as well as and a proper management of the public businesses. To achieve the targeted objective, at the International Conference concerning the Financing for Development (2002), the international community adopted the Monetary Consensus, through which there were established concrete measure in the direction of intensifying the financial cooperation for development as well as and improving the coherence of the international monetary, financial and foreign commerce, system.

The Bretton-Woods institutions were seen engaged in crossfire of criticism coming from different horizons. Whatever would be the difference and intensity of these criticisms, they lead to the necessity of a reform in depth and debates regarding its nature. Trying to answer to the critics from inside regarding the reform, these institutions have not managed to escape from a broader research, presented into a report of Meltzer Commission, which conclude that the situation in the poor countries continues to deteriorate, although the loans continued to grow.

The administration way, pertinence and effectiveness of these loans have been and remain the objective of some current debates regarding the reform of the institutions from Bretton – Woods. The institutions from Bretton Wods must fund programs to support ODM and the assistance for development need of a profound repositioning in the emerging countries.

Financial crises which occur in different parts of the world are bringing a plus of experience in the risk domains, associated with inevitable losses, especially for countries that depend on the rest of the economic, financial and banking restructure. As a result of the recent clashes with risk factors, these countries prove a special sensitivity registered globally, and the immediate effects were found in the reduction of the banking credits, in risk conditions, economic accentuate with implications for the growth of these risks.

After the debt crisis which reached the maximum magnitude in the case of the developing countries (Asia, Russia, Mexico, Brazil, Turkey), in the early 80's and 90's, IMF and WB have progressive developed and consolidated the conditionalities related to granting credits. The American Congress was alarmed by the frequency, severity and big costs of this financial crisis, by the fragility of the international monetary system, by the ineffectiveness of development banks and by the corruption that reigns in many countries. Considering a poor efficacy and a high cost of the policies applied by these institutions, the Commission advocated in the favor of a profound reorganization of IFM and WB and of the regional development banks, recommending:

- Re centering the IMF activities on the position of " creditor of last resort", granting short term loans, with a high interest rate, to the countries that have a solid financial system;
- Considering that WB must decentralize the action of profit at the regional banks, with the exception of Africa and no to play any role in the event of financial crisis.

In a world of free financial markets, the creditor of last resort is the only institution able to operate on the markets affected by instability and panic. The great market intermediaries, aren't participating at rescue plans of liquidity from own initiative, unless if are sustained by an organism of this type which to grant them a collective insurance. With the certainty of this report, they can proceed at buying the assets which are sold massively in crisis periods or can grant loans to those willing to purchase the sold assets by all other users of the market that are rushing to obtain idle money, in a moment of uncertainty. In this way, the mere presence of the creditor of last resort is a prerequisite for regulating the liquidities on the markets, a fact proven in other crisis situations (oct 1987 – threats on the market on term of the stock exchange indicators, calmed through the intervention of the central banks of U.S., the Federal System Reserve.

On the global financial markets, the creditor of last resort is less visible and has never been institutionalized, but recent events of the financial crisis have highlighted the necessity and effectiveness of such an organism.

It is clear that the globalization of the financial markets greatly broadens the action field of a refinancing of last resort, considering that extents the field of spreading the effects of contamination. In this framework, a unique supranational institution can be replaced with a network of central banks, a club which to regroup central banks and supervisors of the banks, which to assume the responsibility of ensuring in organized way the necessary of international liquidities. The function of an international creditor of last resort can take the form of an ad hoc cooperation between the central banks most affected by a crisis at a certain time and it mustn't be necessarily institutionalized. For this, the monetary authorities, whether national, regional of larger scale, from every region of the world – are obliged to devote more attention and affectively on preventing the destabilizing disturbances on the global monetary markets.

3. The involvement of the international institutions in economic and financial solution with global impact

The collaboration between the International Monetary Fund (IFM) and World Bank (WB) is in involving both institutions in actions that were: financing by World Bank of the deficits of payment balance (domain reserved by IFM statute), while the IFM develops lending facilities with long term of repayment (exclusive characteristic of the WB loans). Applying the Monterrey Consensus, help granted by IFM to the countries with low incomes is in using three important instruments:

3.1. The loan facilities (Facility for Reducing Poverty and for Economic Growth (FRPC), facility regarding the protection against exogenous shocks (PSE 2006)[(1)], Emergency Help as result of the natural disasters of post-conflict situations (ACN (1962) or APC (1995))[(2)], Documents of Strategy for Poverty Reduction (DSRP)[(3)], Initiative of Heavily Indebted Poor Countries (PPTE), Initiative of Reducing the Multilateral Debt (IADM) – bringing and effective contribution, through the loan operations, the IFM roles consist in supporting the efforts of the member countries with low incomes in the view of improving the macroeconomic stability, achieving a sustainable growth and poverty reduction. The Initiative of the Heavily Indebted Poor Countries (PPTE), launched in 1996, was addressed to the un-sustained problems related to the debts of most poor countries. The experience PPTE demonstrates that the debts reduction may influence positively the development process. However, the amounts allocated in the context of initiative weren't sufficient to get out all the countries with low incomes to a way of sustained staggering of the debts, allowing them to engage in serious efforts to reduce poverty.

By September 2007, 32 countries have reached at the decisional point found under the consolidated initiative – the point at which the international community is obliged to provide additional assistance to some country beside the traditional debt reduction. Of these countries,

22 have reached at the completion point, while other 9 countries have remained in the interim stage between the decisional and terminal points. Proposed by the G8 countries, in 2006, the mechanism of the Initiative of Multilateral Debt (IADM) is different by the one of the PPTE initiative, but on operational plan the two instruments are linked. IADM offers to reduce in addition the external debts of PPTE and to ensure additional resources to help them to fulfill the Millennium Development Objectives (ODM).

Table 1

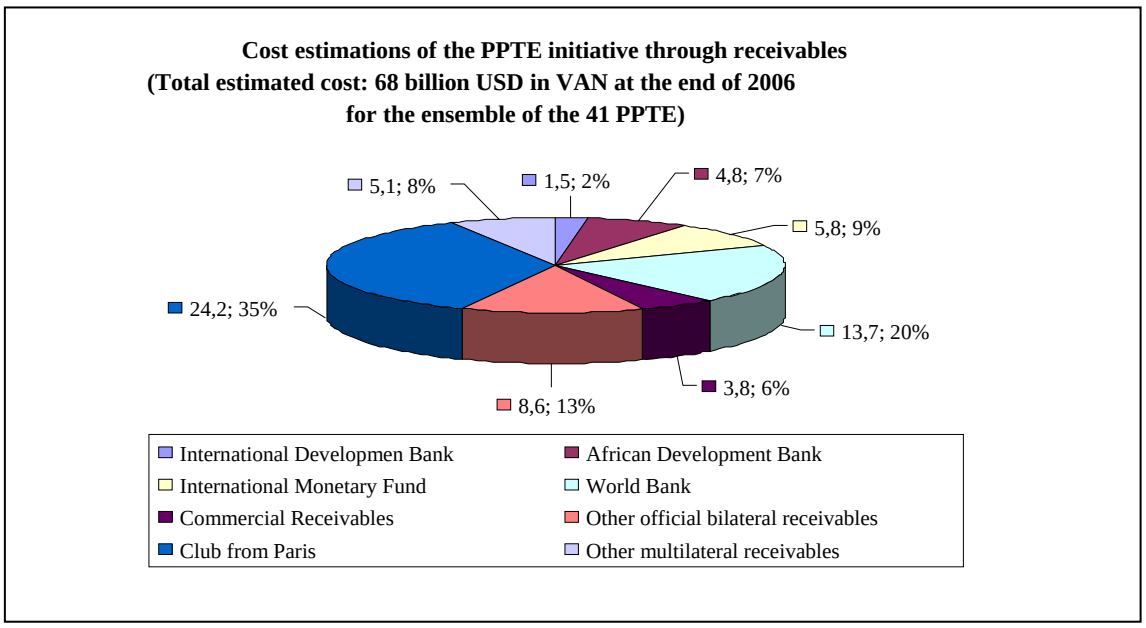
Main characteristics of the initiatives PPTE and IADM

	The Initiative concerning the Heavily Indebted Poor Countries (PPTE)*	Initiative of Multilateral Debt Reduction (IADM)**
Launch	In 1996***	In 2006
Objective	Provides a quick and substantial reduction of debts	Brings an additional support to the initiative PPTE, for realizing the Millennium Development Objectives (ODM).
Eligible Countries	Countries: - which exclusively receive loans from the International Association of Development (AID) and permissible FRPC of IFM - with debt indicators superior to the initiative threshold of PPTE - who have engaged in programs supported by IFM and AID	Poor countries very indebted that have reached or are in progress to reach the achievement point of the PPTE initiative.
Participating Claims	All multilateral, official bilateral and commercial claims	IDA, IFM, African Development Bank (BAfD) and Inter-American Development Bank (BIAD)
Reduce of granted debt	External debt contracted or guarantee by the public sector, at the moment of decision point is reduced to achieve the established threshold within the PPTE initiatives.	Debt paid before the end of December 2004 (for IMF, BID and BAD) at the end of month December 2003 and the one that remained to be repaid at the moment of the achievement point (after it was taken into account the reduction with title the PPTE initiative).
The total cost of debt reduction	45.5 billion USD in net current value (VNA) at the end of 2006; 64.1 billion USD in nominal value	21.1 billion USD in VNA at the end of 2006 41.7 billion USD in nominal value
PPTE countries that have qualified for the debt reduction	32 PPTE reached at the decisional point	22 PPTE reached the terminal point
PPTE countries that can qualify for debt reduction	9 PPTE haven't yet reached the decisional point	19 PPTE haven't yet reached the terminal point.

Source: *www. worldbank.org/economicpolicyanddebt.*
Note: * PPTE (fr.); HIPC (en.).
** IADM (fr.); *IADM estimates include the debt reduction with title of imitative taken at BID in 2007; IADM estimation exclude the IFM assistance with IADM title for Cambodgia and Tajikistan which aren't PPTE .*
*** In March 1997, Uganda was the first country that benefited of this new initiative.

Not all PPTE will benefit equally by IADM, as well as not all the regional financial institutions will benefit from deletion of the debts under this initiative. Beside the BAfD participation, recently the BIAD has agreed in November 2006 a package of debt reduction for five of the poorest countries (Bolivia, Giuana, Haiti, Honduras and Nicaragua). IADM

requires that IFM, AID, FAfD and BIAD to cancel the totality of receivables of the countries that reached at the terminal point within the consolidated PPTE initiative. In addition, FMI provides a debt reduction with the IADM title to all members, of whose annual income per capita is equal to 380 US dollars. Through the IADM, there will be obtained reductions of the debts of ~50 billion US dollars, meaning an average of about 2 billion US dollars per year in the next decade.



Source: www. worldbank.org/economicpolicyanddebt.

Figure 1. *Cost estimations of the PPTE initiative through receivables*

3.2. Technical assistance – Any country must have adequate means for the formulation of its policies, for ensuring some economic growth and of and sustainable development. To prevent the system's vulnerabilities, IFM must take into account by the difficulties with which are confronting the countries in transition or those in course of development, in applying the requests imposed by the Financial Sector Assessment Program (1999 May), offering technical assistance and recommendations, creating a special framework aiming the economic policies and investment climate from these states. Strengthening the IMF presence in the countries with low incomes were materialized through the inauguration of a regional network centers of technical assistance in Pacific, West Indies, East Africa, West Africa and Middle East.

3.3. Surveillance – initially, the surveillance aimed on controlling the monetary and budgetary policy and on the regime of exchange rates regime. The IFM oversees the structural policies, financial sector and institutional problems, assessing the vulnerability at crises. Counseling by the IMF of those 185 member countries has as purpose: a favorable economic framework to the growth sustained and poverty reduction; identification of the risk sources and economic vulnerabilities; institutional consolidation policy formulation.

Table 2

IFM assistance in the countries with low incomes (at 30 September 2007)

Number of member countries with low incomes*	78 countries (42% of the total of member countries)
Loan agreements with title of FRPC in force	1.4 billion USD for 25 countries
Debt reduction subscribed until present, with PPTE title	2.7 billion USD (nominal value)

Debt reduction granted till present, with IADM title	3.4 billion USD**
Technical assistance received by the countries with low incomes	Approximately 52%, during the 2005 year
Consultations with title art IV resolved with the countries with low incomes	45, during 2005

Source: *Fiche technique - octobre 2007*, Département des relations extérieures du FMI.
Note: *Countries eligible for the IMF's concessional lending
** of which 0,4 billion USD financed from resources predestined PPTE

Recommending a more active involvement of IFM and WB in implementing the strategies of poverty reduction in the underdeveloped countries, UN has harshly criticized those institutions , because they have undermined the fulfill of the directions contained in the ODM. Advising the countries to ignore these objectives, the economic measures are taken by the countries that have implemented the IFM policies in contradiction with ODM. A large number of countries with low incomes have developed plans to increase at scale the sector strategies, but for budgetary rations they couldn't apply.

The country programs, in for steps, of IFM failed (Polonia, Romania, although it has not been consistent in respecting the stand-by agreements; Coreea, where IFM imposed the increase of the interest rate from 9% to 25% then to 40% followed by the suspension of the social helps; Indonesia). The spectacular achievements of some countries that haven't resorted to the IFM's help, was due to creating own strategies: using the reserves, creating the new jobs, small interest rates to encourage new start businesses, social solidarity. Good examples are: China, which holds 75% of the total increase of the national income from the not developed countries; Korea, where the national income increased eight times in the last 35 years.

In a speech that was aiming a demarcation of WB of the IMF's interventions, a clear break with the usual approach beside the structural adjustment applied by the two institutions, Wolfenshon J. (former President of WB) said: "We learned that, above all, it is essential to develop macroeconomic strategies and programs better adapted, harmonized with effective budgetary and monetary policies, the financial plans being insufficient... the development it isn't just a simple adjusting problem, of budget of healthy financial administration, of education or health, of technocratic remedies...whenever the WB has adopted a limited view concerning the necessary economic transformations, concentrating on macroeconomic results of on major reforms, like privatization, without carefully preparing the institutional infrastructure without which neither market economy can become functional?"

Sustaining the Wolfenshon's statements, Stiglitz J. (former chief economist of WB) was appreciating that mainly the IFM together with the BM and OMC are poor administrators of the globalization. But the WB voice is clearly remarkable beside that of IFM, by supporting and successes of the projects and programs sustained in numerous countries, even if the IMF's austerity measures undermines these efforts.

Severino believes that IFM should look beyond the simply administration of the financial crises and to concern about the non-cooperative economic behaviors – especially in the monetary domain. The international Community would only benefit if the IMF would become a center of joint monitoring and permanent dialog between the rich nations, the poor and emerging ones.

Over time, around the money destined for the development, there were created numerous financial scandals, considering that all the money from the ensemble of the system of financial help were wasted or even misapplied beside the proposed purpose, and many donor countries have subordinated the help of their own political, strategically and commercial interest, maintaining the fosterage of the poor countries. Often, the fraud and corruption were considered a result of the failures of aid programs, the latter being considered one of the important factors that provides underdevelopment.

Notes

(1) FRP and PSE are granted with concessional tax (only 0.5%) and repayable in a period of 10 years (with a grace period of 5 an half years). At 30 April 2007 there were sustained, through FRPC agreement, programs of reforms in 29 countries, and the risks of the concessional loans amounted to 3.9 billion DTS (Special Drawing Rights), the unit of account of the IMF, which plays the role of instruments. On 1 May 2006, 1 USD= 0.67978 DST, respective at 30 April 2007 1 USD = 0.65609 DST, in International Monetary Fund – op. cit

(2) Are repayable within a period of five years (with a grace period of three and one quarter of years). The contributions of opening these funds are considered reductions at the interest rate, which is reduced to 0.5% for the countries with low incomes. During the exercise (1 May 2006 – 30 April 2007), the Board Council approved an APC in an amount of 50.8 million for Liban, while for Haiti and Central African Republic repaid them the loans totaling 33 million DTS. At 30 apr. 2007, two countries (Irak and Liban) had benefited from loans from APC, of which amount rises to 347.9 million DST, During the execrciese, Malawi has repaid the loan ACN in an amount of 8.7 million DST. At the end of April 2007, three countries (Greande, Maldive and Sri Lanka) have requested a CAN credit in amount of 111.5 million DST.

(3) DSRP describe: macroeconomic, structural and social policies undertaken by a country, over several years, to promote the growth and reduce poverty (improving the health services, education, protecting the environment, fight against SIDA, malaria and other diseases); the requests of fextenral financing and other sources related to financing.

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FINANCIAL CRISES. ASPECTS REGARDING THE CRISIS IMPACT ON THE ROMANIAN CAPITAL MARKET

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Abstract: *Economic and financial stability, sustainability and durable development are top priorities to all world nations and this aspect must become no one for both European Union and Romania. Negative effects induced by the short time capital moves and of the different speculative assets bubbles must be restrained and strictly controlled by law and fiscal means. Those means must favour the entrepreneurship spirit, long term investments and jobs creation versus derivatives bets and the short term profits maximisation targets specific to the large investment banks and investment funds.*

Keywords: economic and financial stability; speculative bubbles; control of the speculative capital.

JEL Codes: E320, G010.

1. Financial crises typology

Generally speaking of the recent global crisis, first of all we state that it is a financial one. But a financial crisis is not possible outside of an economic compound.

And then we must accept Nicolae Georgescu – Roegen's idea that an economic border must be treated as half-dark phenomena.

If we try to set up a financial crisis typology we have to consider its complex nature.

First, we look to its factor – cause system that generates it.

Second, we scrutinise the economic environment in which it manifests.

Third, we examine its area of coverage.

Any classification has to suggest at least the measures and anti – entropic activities that must be accomplished by the responsible factors. View the recent situation, David Kotz (Voinea, 2009) identifies four types of economic crises:

a) The crises generated by the faster growth in wages than in productivity;

b) The crises induced by the over consuming;

c) The crises due to the investments excess; overload investments can lead to excess product capacities that cannot be sustained by real returns;

d) The crises caused by the speculative bubbles.

But, in the first phase we have to distinguish between cause and effect. Even if the roles can change, as the effect can become reason and so on, turning into a pro-cyclic feature of the crisis.

The significant fluctuations of asset prices can noteworthy influence global major targets such as economic growth, control of inflation or unemployment. In specific economic conditions, see "*dot-com bubble*" in 2000' or the recent one "*subprime crisis*" during mid-2007 and present may generate a drastically fall in average income, job reduction and so on.,

eventually affecting general wellbeing and prosperity. A continuous and stable economic growth and job creation depend ultimately of the existence of financial stability.

The channels through which assets prices can alter the global wealth objective encompass, among others, the following (Pau, 2010):

- The relationship between assets prices and the consumption growth; it was shown that 1$ increase in the value of assets the consuming increases with 5 cents. A greater value of some assets, in example the real estate, increases the mortgage value of it but, also, the leverage and the virtual solvability of the owners, stimulates either the supplementary consumption of people either the development investments of companies.
- Credit relaxation; this channel was a premier factor by artificially stimulating the purchasing power of persons.
- The growth in value of the companies' assets improved their financial data and also their debt rating. Along came the decrease in cost of financing and therefore the demand for development loans augmented. Once this channel was blocked, there was a significant diminishing of the consumer's purchasing power that consequently affected different industries and moreover the capability of enterprises to grow through technology and research. The cost of financing become prohibitive combined with the more difficult access to loans, first of all in emergent economies and in some of these countries, with the exception of China, the economic growth performed in 2007 and 2008 turned into recession.

A macroeconomic event with a noteworthy impact can cause instability on capital markets or on any other market type (real estate, commodities). Such events also called "*black swans*" are described by some financial authors as unpredictable and able to affect large masses of human beings (Taleb, 2007).

Others authors (Roubini, Mihm, 2010) describe such events as being predictable, at least regarding the speculative bubble assets, see the residential real estate USA bubble, naming them "*white swans"*.

The effects of these events on capital markets, especially the immature or emergent ones are of our concern. We refer to the panic connected with the massive stock selling at the end of an asset bubble (see the "*dot – com*" American bubble), to the irrational exuberance ended in the unmotivated buying of securities related with the forming of an asset bubble. (see the legend of Asian tigers and the speculative funds created only for this market segment, quite a rush in that time). There is as well a third negative effect, the restrain of the most of the market players to trade until the trend reveals itself, basically to identify a trend either on medium or long period.

2. The problematic of financial stability

The economic stability in general, and especially the financial one, implies the systems' capacity to handle endogenous or exogenous entropic factors and generate and stimulate other entropic factors to lead to a dynamic equilibrium condition with progress perspectives.

The world states can secure economic stability only by limiting the speculative capital moves and through encouraging long term investments that favour job creation. Still there is the danger for another speculative asset bubbles on those emergent markets that didn't adopt adequate measures to control the foreign capital flows (Stiglitz, 2010).

These phenomena can affect any emergent economy that fails to impose an efficient control to the entries and exits of speculative money, and this includes Romania. A strong signal on behalf of it is given by the recent measures carried on by two of the most important emergent economies of the world, China and Brazil, with the purpose to better control the short term capital inflows and outflows and limit the possible untoward side effects.

In mature capital markets, before the subprime crisis, it was discussed and promoted the idea that one can buy and profit for more structured products if only you cover it with insurance.

In reality it proved to be only a false risk transfer to a counterparty because some of the financial companies that took this risk, in exchange of a substantial fee, went bankrupt or declared insolvency. Such was the case with the larger insurance company in the world, the giant American International Group, whose crash induced panic on the markets living without coverage significant positions within a lot of investment banks and funds. Once again it proved that the counterparty risk was totally ignored in the investment industry.

Another negative side that is worth to be mentioned is the abnormal complexity of contractual relationships along with opening derivatives positions on subprime securities. Parties rather preferred to open new term positions, with complementary dues, than closing the existent ones. This is the reason that not even today lots of open positions cannot be closed, the amount we are talking is not precisely known, but it is common believed that would be huge and distributed among important investment banks and funds (Stiglitz, 2010).

Analysing the current situation in Romania starting the last 2007 quarter to the end of 2010 we recognise as causes for financial instability, our topic of interest, a series of disruption factors (entropic) both endogenous and exogenous. The identification of these must be separately done for the two components of the financial market, capital and respectively money market.

Capital market was influenced by the contact with the speculative foreign capital that transmitted the complex disturbances from the markets abroad, especially the mature ones. The inflows and outflows of this capital were determined by the turbulences on the external markets, by the opportunities arisen along with the economic decline (in example futures on gold) and by the risks induced by some financial instruments (in example the securitised subprime).

As regarding the internal causes, we can identify as negative side effects:

- Irrational exuberance of investors reflected in the abrupt increase of stock prices until the middle 2007;
- The inflate volatility of the national currency compared to the main foreign currencies;
- An excess in development and expansion investments (mainly in certain industries such as real estate or large retail market) unsustainable yet by the appropriate rise in productivity and average income.

Referring to the money market of all the exogenous factors that could be mentioned we stress upon those addressing the policies of the foreign banks that are majoritarian in main Romanian banks and also to the conveying of negative signals by the international monetary system.

The rise in the monetary policy rate, at the specific moment when the national economy was functioning only by inertia and was heading towards a straight decline ended in blocking the credit system.

Not even the banks could be absolved by the responsibility as much as the collaterals accepted along the borrowing process were not adequate enough. Another aspect would be that the focusing of the monetary policy exclusively on the targeted inflation rate was not enough but even caused adverse side effects.

3. The characteristcs of actual financial crisis

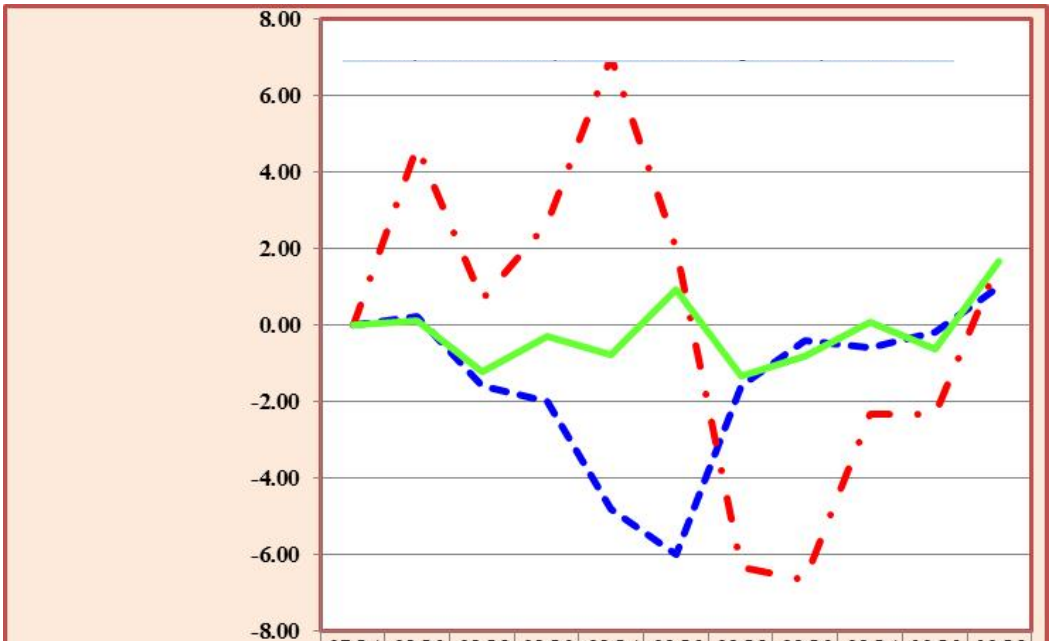
It is unanimously agreed that the actual financial crisis with world level reverberations is originated in USA. From the irrational exuberance of public capital markets prices one get to the speculative real estate bubbles, and eventually to the fact that the securitized mortgages

be packed and re-packed multiple times. Following the world selling of those derivatives, mainly within the mature economies, a contagious phenomenon was settled.

Every stage accentuated the complexity of the initial support asset (the mortgage), it finally becomes a structured one. Irreversibly it was also a large increase in the risk associated with these new financial instruments. The ultimate owners obviously lacked the knowledge and ability to properly price these instruments and understand the incertitude related to their fair value

Observing this process within Europe we point out that the strongest effects were proved in the South of 45° Parallel countries, fact that leads to interesting conclusions. The Figure 1 beneath, showing the evolutions of the returns in GDP UE-27, S&P Euro 350 and gold, illustrates the gap and the disconnection between real and financial (virtual) economy opposing to the stable and positive evolution of a refuge asset like the gold.

S&P Euro 350 is an index composed by issuers within Euro Zone being characterised by a good industry and geographic diversity. One can see that even if the UE-27 GDP started its decline from T1 2008 the capital markets euphoria continued to properly describe the capital markets indexes. Contrasting to the fact that the real economic recovery started from T1 2009 the abrupt decline of the virtual returns continued till T3 2009.



	07Q4	08Q1	08Q2	08Q3	08Q4	09Q1	09Q2	09Q3	09Q4	10Q1	10Q2
RE_PIB EU (27 Tari)	0.00	0.20	-1.60	-2.00	-4.80	-6.00	-1.60	-0.40	-0.60	-0.20	1.00
RE_S&P 350 Europe	0.00	4.67	0.67	2.67	7.00	2.00	-6.33	-6.67	-2.33	-2.33	1.67
RE_XAU	0.00	0.11	-1.23	-0.29	-0.79	0.91	-1.35	-0.82	0.09	-0.63	1.67

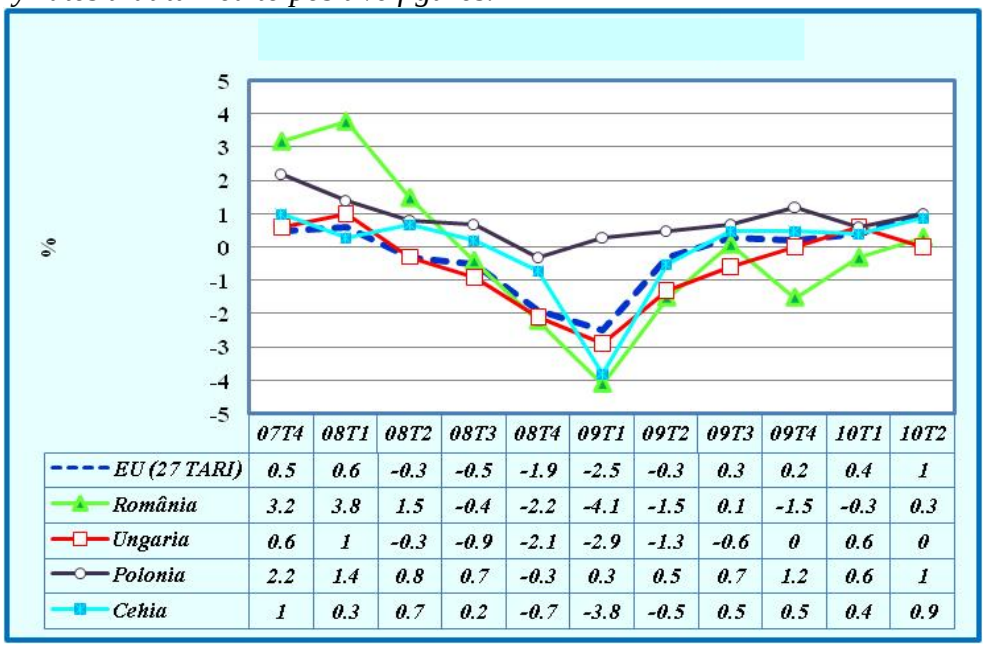
Source: Compounding the Eurostat, Bloomberg and Standard & Poors data.

Figure 1. *Rentability evolution S&P Europe gold and EU-27 GDP*

Back to Romania, it is obvious that we deal to a complex type of crisis, a systemic one, due to political and legal incoherencies, to the lack of a package of logical strategies, applicable towards the end of economic growth. Analysing the evolution of the Romanian quarterly GDP, the UE's 27 and those of Hungary, Poland and Czech Republic, shown in Figure 2, we conclude:

- *Except for Poland, the economies analysed decreased more than the UE average and recovered less this year;*
- *Even if Romania registered at the beginning of the period larger growth rates than the other emergent European economies or than the UE average, during the recession period Romania had larger negative rates;*

- *Except for Romania and Hungary, which manage to obtain during the actual recovery growth rates around zero, Poland Czech Republic but also the UE average had GDP quarterly rates that turned to positive figures.*



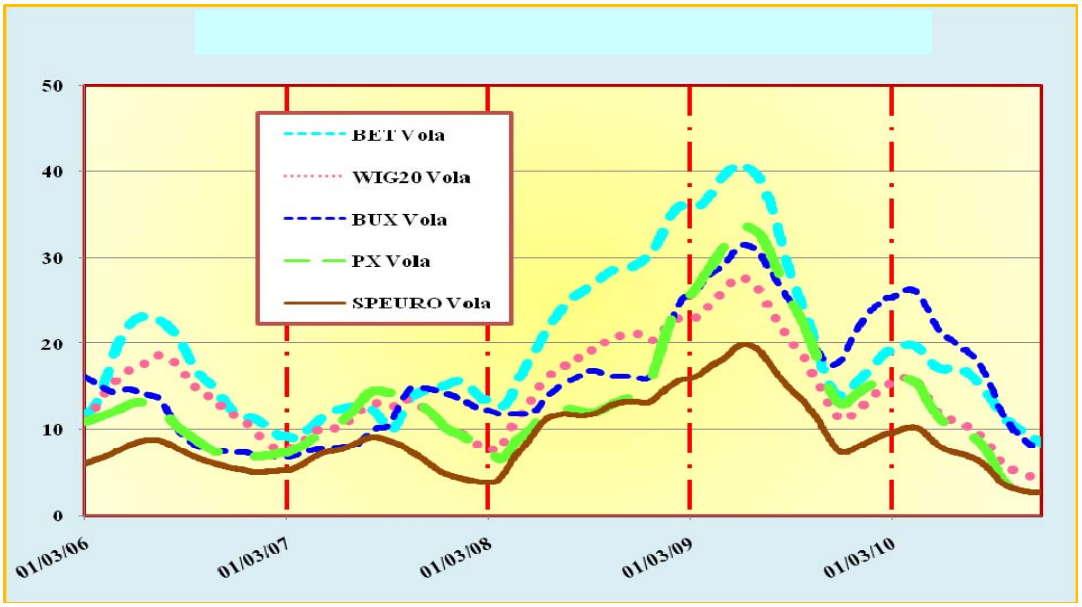
	07T4	08T1	08T2	08T3	08T4	09T1	09T2	09T3	09T4	10T1	10T2
EU (27 TARI)	0.5	0.6	-0.3	-0.5	-1.9	-2.5	-0.3	0.3	0.2	0.4	1
România	3.2	3.8	1.5	-0.4	-2.2	-4.1	-1.5	0.1	-1.5	-0.3	0.3
Ungaria	0.6	1	-0.3	-0.9	-2.1	-2.9	-1.3	-0.6	0	0.6	0
Polonia	2.2	1.4	0.8	0.7	-0.3	0.3	0.5	0.7	1.2	0.6	1
Cehia	1	0.3	0.7	0.2	-0.7	-3.8	-0.5	0.5	0.5	0.4	0.9

Source: Compounding the Eurostat data.

Figure 2. *Quaterly evolution of GDP increace rate*

The lack of correlation between the monetary policies and the governments' executive measures and Parliaments ended in incoherencies with pro-cyclic outcomes. Apart from an economic overheating during 2004–2008, the States' measures created a strong disequilibrium in the administration of capital account, current account and budgetary deficit.

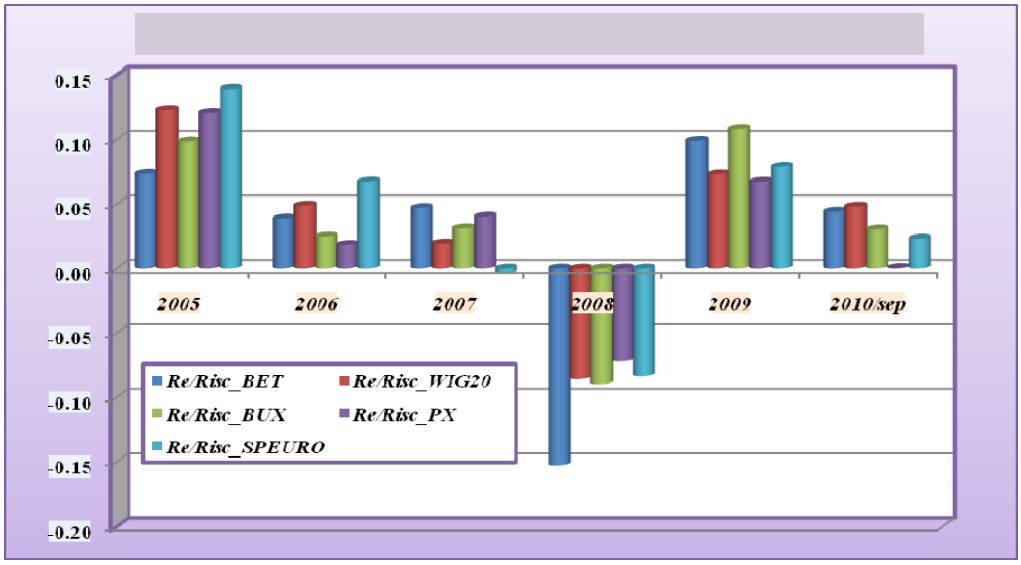
This disequilibrium contributed to the negative evolution of the Romanian capital market. The securities listed at the Bucharest Stock Exchange had a considerable higher volatility than a representative European index, such is S&P Euro 350, as one can remark in Figure 3. Further, the volatility of local capital market is quite larger than that of Polish, Hungarian or Czech capital markets.



Source: Compounding the Bloomberg data.

Figure 3. *Volatility change for stock exchange indexes, between 1.01.2006 and 30.09.2010*

During the last 20 years Romania missed the chance of a gradual transformation, coherent and beneficial for the whole population, of its centralised economy in market economy, characterised by the healthy principles of competitiveness, efficiency and equitable allocation of resources and stimulus packages. Figure 4 illustrates the amplitude of the crash of the risk adjusted return of BET compared to European index, or the Polish, Hungarian or Czech indexes.



Source: Compounding the Bloomberg data.

Figure 4. *Solvency to risck ratio, for stock echange, between 01.01.2005 and 30.09.2010*

3. Conclusions

Creating and maintaining a steady financial system must become the main priority both for European Union and member states, including Romania. Such a system gives the premise for a stable and durable economic growth, stimulating the business environment, jobs creation and resurrecting consumption.

Extreme speculative behaviour in the financial markets have to be sanctioned in order to contempt the excessive risks taken, not necessarily by individual investors but mainly by the large banks, insurance companies or investment funds (SCFESC 2010). It is worthy to stimulate the entrepreneur behaviour, the direct investments in real economy, that creates jobs and sustain economic growth.

A better control and a more severe regulation during the forming process of a price bubble can significantly limit the negative impact of the price crash of different assets categories.

Other directions to be taken are International Financial Reporting, Accounting or Valuation Standards, in the sense of revising and completion with the benefit of current intelligible and transparent information regarding the value and the risk associated with diverse financial instruments.

View the challenge brought to European Union by the process of aging of the population in front of more and more nations it is justified to adopt special measures to solve this issue. The means to do this include stimulating the demographic growth or measures to increase the efficiency of administrated pension funds but also those targeted to increase the effectiveness of education and continuous training programmes.

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IMPACT OF IMF AGREEMENT ON EXCHANGE RATE. THE ROMANIAN CASE

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Abstract. *The present paper aims to analyze the impact of the Agreement between Romania and the International Monetary Fund on the EUR/RON exchange rate. After highlighting the central the exchange rate plays for the Romanian economy, the article studies how economic and financial crisis has spread into the economy and how the financial aid provided by international pole coordinated by the IMF has reflected on macroeconomic developments. Conclusions are related to the need for ongoing macro-economic restructuring, so that the loan would prove useful on the medium and long term.*

Keywords: exchange rate; financial crisis; financial aid; International Monetary Fund; Romania.

JEL Codes: F31, F33, F35.
REL Code: 10J.

1. Introduction

Motivation for choosing this subject is related to the central role played by the exchange rate for Romania throughout the period after the abandonment of centralized economic system. The country's entire monetary policy has been built around the central point of the exchange rate. Although since 2005 the monetary policy strategy has been modified by passing to the direct inflation targeting, the "spectrum" of the exchange rate is still present, many of the decisions of economic agents, and also of the authorities were adopted according to the past, the present and future values of this macroeconomic variable.

The importance of the exchange rate for Romania's macroeconomic policy makes the study of interrelationships between it and other macroeconomic variables particularly interesting with a view to determining channels through which the exchange rate influences the course of other indicators as well as the way other indicators influence the course of the exchange rate, so the achievement of macroeconomic stability can be determined.

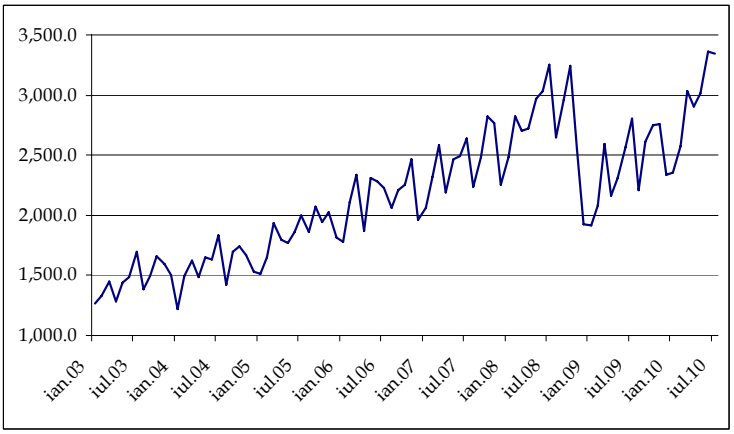
2. Transmission mechanisms of financial crisis in Romania

The current financial crisis is characterized by devaluation, diminishing reserves, the fragility of the banking sector, but also by the decrease of confidence in the effectiveness of the measures taken by authorities. Although not all economists share the same views on the causes of the outbreak of turbulence, however, the motivation is often attributed to fiscal variables, high external deficits, and the fragility of the banking system.

The beginning of the crisis during 2008 and especially at the beginning of 2009, within financial structures as well as within the real economies of developed Western European countries, could only go on to affect the countries of Central and Eastern Europe as well. These countries are heavily dependent on the rest of the European Union and the negative economic situation of the economically developed countries was transmitted to emergent countries.

The negative macroeconomic (Costică, Bojeșteanu, Hândoreanu, 2009, pp. 165-166):

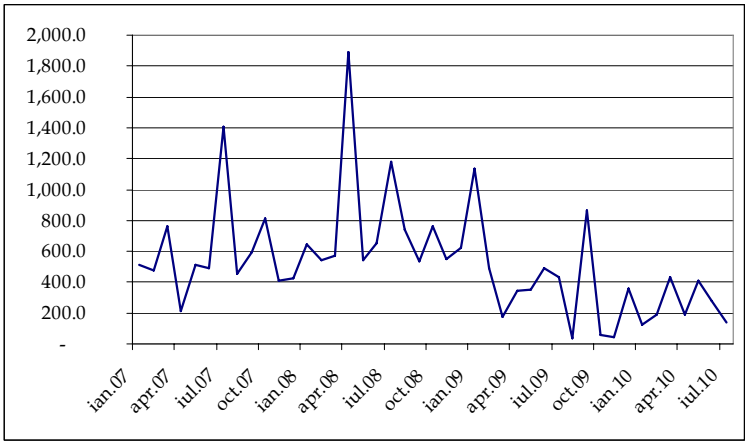
a) The first channel is the export: the principal market for the products from Central European Countries is represented by the EU countries, but each crisis-affected country will try to protect domestic industry, and as a result will prefer to consume products of domestic origin, which in conjunction with the contraction of the market size, due to the crisis will lead to a dramatic drop in exports. Exports decline has as a result the reduction in the quantity of currency entering the country, in consequence a smaller amount of currency offered, thus a depreciation of the national currency.



Source: Own graphic based on NBR data.

Figure 1. *Romanian exports evolution between 2003 and 2010 (mil. EUR)*

b) The second channel is that of foreign cash flow entry into the country for direct or portfolio investments: as an effect of the crisis, investors are more cautious in terms of investment in other countries and will stop or postpone the direct investments. Regarding portfolio investment, the situation is even more sensitive because the big foreign players in the financial markets will try to liquidate their open positions, so that losses incurred as a result of the collapse of stock markets would be as low as possible. These decisions are taken regardless of the effects on the financial market in any given country.

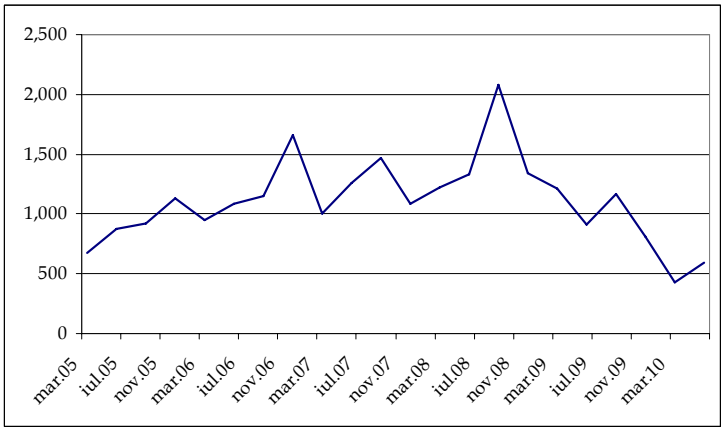


Source: Own graphic based on NBR data.

Figure 2. *Foreign direct investment evolution between 2007 and 2010 (mil. EUR)*

c) The third channel is represented by the net current transfers which are designed to balance the current account deficit and increase the supply of currency in emerging countries. A feature of Romania's current account deficit is that, throughout the period after 1990, deficits smaller than the trade deficit were registered, due to the positive effect of the net current transfers. For Romania, this has become more important since joining the EU, when the free movement of labor has led to a shift of the labor market. Even if, until 2004, balance transfers offered only a splitting between current government and private transfers, since

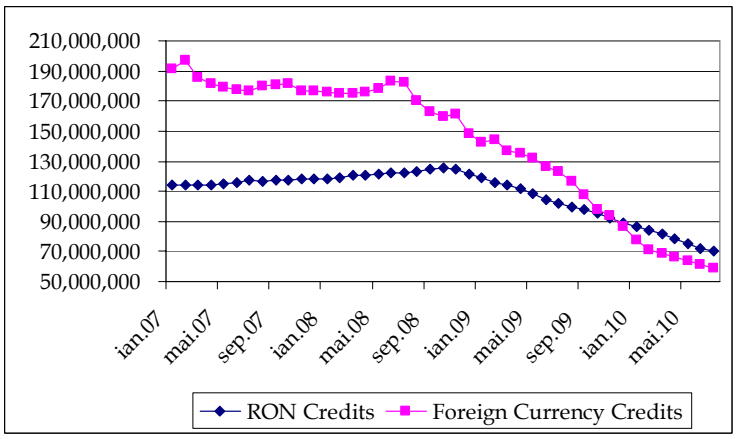
2005, there was a splitting of the private transfers between other transfers and workers' remittances, which was estimated at about 60% of the total. As shown in Figure 3, the net current transfers have suffered a substantial decline for Romania after the start of the economic crisis. This is the reason that third channel of the transmission of the crisis has affected the exchange rate through reducing the supply of currency on the forex market in our country.



Source: Own graphic based on NBR data.

Figure 3. *The evolution of the net current transfers between 2005 and 2010 (mil. EUR)*

d) The fourth channel is related to foreign currency lending in most countries of the region, both companies and individuals preferring this form of financing, leading to increased financial problems as the national currency depreciated. In the case of Romania, a change in the way of acquiring more debt as the crisis deepened. If, at the beginning of 2007, loans of the households and non-financial sector denominated in domestic currency accounted for only about 60% of loans in foreign currency, in October 2009 they reached a volume about equal for the two types of credit, and in July 2010 the share of foreign currency credit from the whole of the credit in RON to be of only 84%. This shift of customers towards loans denominated in local currency expressed a more cautious attitude towards the exchange rate, economic agents becoming aware of the adverse effect that the exchange rate developments may have on their business.



Source: Own graphic based on NBR data.

Figure 4. *The evolution of the lei and foreign currency loans between 2007 and2010 (mil. RON)*

The damage to these channels as a result of the financial crisis leads to a depreciation of the currencies of emerging countries.

3. The IMF approach to exchange rate

In his role as an intergovernmental organization which aims to ensure the functioning of the international financial system, supervising macroeconomic policies adopted by the member countries, especially by those facing problems with the exchange rate and current account deficit, International Monetary Fund has issued recommendations on liberalizing economic policies, most often as a requirement for various types of loans or financial aid. Applying these recommendations affects the exchange rate of the countries involved, as was expected given the central role that the exchange rate plays in each economy.

The debate between a fixed rate regime and a flexible one was often convoluted by the International Monetary Fund, whose recommendations were modified in line with economic circumstances. At the beginning of the Asian crisis, IMF accused foreign currency anchors not necessarily of the triggering of the Asian crisis, but of enhancing the crisis' costs. It is true that currency peg encourages the unsustainable growth of the foreign currency loans, which raises costs for debtors, leading to the bankruptcy of firms and banks. These costs, together with the losses suffered by the monetary authorities in an attempt to defend the exchange rate led to further speculative attacks and the change in doctrine changes IMF underwent. Although for a long time, they argued that fixed exchange regimes is the right tool against the inflation, the IMF has shifted in the late '90s of the last century to extreme solutions, based on the anchor currency countries, currency boards, dollarization or pure floating. After the 2001-2002 Argentinean crisis, the IMF has made a new change of doctrine, recommending managed float, accompanied by inflation targeting. These changes in the recommendations show great uncertainty still affecting this field. Analysis of the exchange rate regime should be made taking into account the macroeconomic performance achieved in the context of a specific foreign exchange regime. In theory, the system chosen should be able to influence inflation by creating an external anchor for the national currency, but at the same time, maintaining a neutral effect on long-term economical growth; but, if by maintaining fixed rates for an overextended period of time increases the risk of crisis, it is likely that macroeconomic performance would be affected.

The IMF aid can be a signal to the external partners of the country in question that its economy will be recovered using the received additional resources and complying with the measures imposed by the international organism. However, the presence of the IMF in a particular country indicates that it is in a difficult situation, as noted by Sachs and Radelet (1998, pp. 4). The authors point out that the Fund has acted to diminish the confidence in the economy helped when it stated that the motivation of crisis is most likely given by the weak economic fundamentals rather than panic among creditors. Sachs and Radelet (1998, p. 52) states that the IMF does not play the role of lender of last resort, and the announcement of future granted loans does not aim at stopping creditors flood out from the economy referred to. Also, the restrictive measures imposed for the loan approval have the side effect of the suspicions rising for the potential investors about the economic capacity to recover and potentially generating the so-called "rational panic".

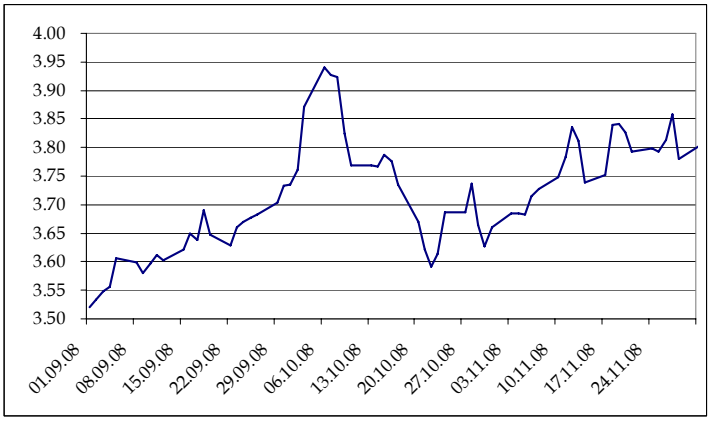
Stiglitz (2000, p. 1) also exposed his disapproval for the IMF aid. He shows that the Fund uses two categories of measures: fiscal austerity and conservative economic policy. The author argues that these measures have worked only for the debt crisis of the 80s of XX century. Another important criticism is that the IMF does not pay attention to the problems at the microeconomic level, or, if this happens, the solutions adopted are still the ones used at the macro level, without making any adjustment to the real needs of businesses.

4. Agreement with the IMF and the evolution of the exchange rate as well as that of the macroeconomic indicators for Romania

After 2000, the Romanian economy has gained an unexpected boom, registering a rapid growth in GDP. According to Franks (2009, pp. 1) in the time span of 2003-2008 GDP growth average was over 6.5 percent per year. This rapid growth has become possible because

of direct foreign investment and foreign capital flows – a major part of these funds has been facilitated by foreign banks, which have created subsidiaries in Romania. All this foreign investment has fueled consumer spending and led to a boom of investments by local companies. This rapid growth of loans has favored the exposure of Romania to the effects of the financial crisis. As a result of the global credit collapse, the country suddenly began to face problems in attracting foreign capital. Problems have also affected the exchange rate, leading to a depreciation of over 15 percent of the national currency against the euro since October 2008. Because more than half of domestic private loans are in foreign currency, the weaker leu results in the situation in which companies and consumers have to pay higher interests on loans. As a result of these processes, growth slowed to 9 percent average recorded during the last three quarters of 2008, reaching a decline of 13 percent in the fourth quarter. This is equivalent to one of the most dramatic falls in economic growth in emerging markets.

The motivation of this development is given by the global economy; the crisis which affected all countries has not left untouched the Romanian economy. As a result of adverse macroeconomic developments in the countries of origin, massive outflows of foreign funds were recorded leaving Romania, which may be easily observed in the EUR/RON exchange rate evolution (illustrated in Figure 5). As shown by the chart, when the short-term foreign funds (primarily financial investments) were withdrawn from the Romanian market, the euro has appreciated by about 7% in relation to the national currency in just 10 days.



Source: Own graphic based on NBR data.

Figure 5. *The EUR/RON exchange rate evolution between 09.01.2008-11.30.2008*

In the mid 2009, the Romanian Government signed a new loan agreement with International Monetary Fund after the previous standby agreement, amounting to SDR 250 million, completed in 2004, was abandoned in 2006 without using the amount lent.

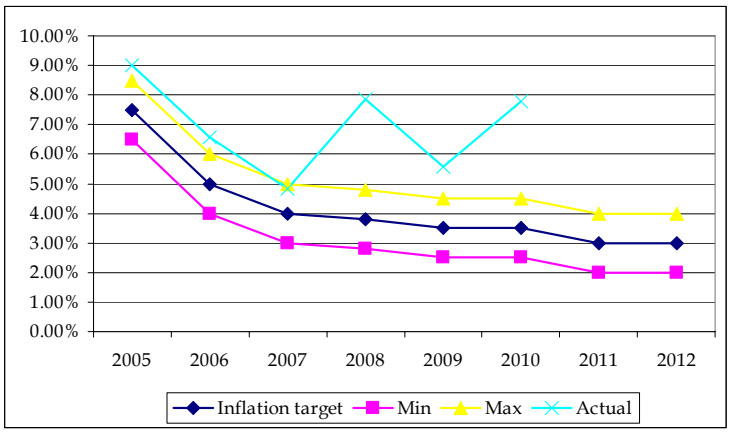
Under this new loan, the Fund has imposed tough conditions on the budget deficit, inflation and restructuring of state companies. The evolution of all these indicators, as well as the government guarantees and how the European Union allocated funds are spent should be reported to the IMF monthly or quarterly.

The Agreement with the IMF was made taking into account the three pillars in the macroeconomic restructuring: reducing the budget deficit, reducing inflation and strengthening the banking sector.

Regarding the budget deficit, it should not exceed the quarterly limits imposed by the Fund with more than 200 million RON. In addition, government guarantees granted to the non-financial sector should not exceed 6 billion per quarter. State-owned companies are also not bypassed by the provisions of this Agreement; the Ministry of Finance and Labor must keep a permanent monitoring of state companies, so they may be restructured in order to reduce salaries, and dismiss management which fails to comply with the requirements of the Agreement. One of the most controversial measures planned under this agreement was linked

to the Law of the Single Payment for the State Employees, which by redefining the revenues for broad categories of employees created deep resentment and also restriction of consumption at the macroeconomic level. Additionally, a rigorous system of tracking how EU funds are allocated and spent was implemented.

Regarding the inflation reduction, the Central Bank should make every effort to keep it within the limits imposed by the official target of 3.5% + / - 1 percentage point set for 2009 and also for 2010. The National Bank should consult the Fund if the rate of inflation exceeds the margins of variation set for each quarter. As shown in Figure 6, the central bank failed to achieve the inflation target (except in 2007), but maintains its commitment to bring this macroeconomic indicator within the limits beneficial for the economy.



Source: Own graphic based on NBR data.

Figure 6. *Inflation evolution into the established limits*

In order to strengthen the banking sector, the National Bank of Romania should consult with the Fund when adopting new prudential regulations and it should also accelerate the introduction of International Financial Reporting Standards for the current banking practice and adapt current procedures of deposits guarantee to the European Directive related to the guarantee schemes.

Taking into account the macroeconomic context of the first half of 2009, an agreement with IMF and EU was the best solution that could be taken given the fact that the few foreign funds still existing in the country were about to leave. More than providing additional financial resources, the obtained loan gave out a positive signal to foreign investors who have gained assurance that macroeconomic policies adopted in Romania will be coherent and able to ensure financial stability. Isărescu (2009, p. 31) states that some adjustments for the Romanian economy would have been very painful without foreign financial assistance. For example, if the risk of the funding gap would have materialized at the maximum anticipated for 2009, then most likely downward pressure on the leu would have resulted in an exchange rate crisis with negative effects on inflation and hence on financial assets denominated in national currency.

Current account deficit set in 2008 at around 13% of GDP had to be financed, in the absence of external credit granted to private economic agents; public funding was needed to cover the consumption that exceeded the production. It can be reiterated here the importance of inter-temporal balance between current account and fiscal deficits: apparently sustainable external deficits can easily turn into a crisis when external funding is lost, and fiscal deficits can easily turn into failure to comply with social security plans where funding is lacking.

Despite the current account deficit decline to 4.4% of GDP in 2009, only about half this amount can be supported through direct foreign investment, the rest must be financed through additional sources. For this reason, as also shown by Isărescu (2009, p. 34), as far as the the future development of the real effective exchange rate of national currency is

concerned it is desirable its stabilization around a level compatible with a current account deficit which can be comfortably covered by foreign direct investment.

The current account deficit (CAD) is one of the main determinants for the exchange rate (EURRON), especially for a country so dependent on imports as Romania. For the period of January 2006 - July 2010 defining equation is:

$$EURRON = 1.609566315 + 0.04446915777 \times CAD$$

This equation shows that 4.44% of the current deficit will translate into an increase in the exchange rate expressed in direct quotation, i.e. a depreciation of the Romanian leu. The fact that only a percentage of 28.23% of rate movements is explained by the evolution of current account deficit indicates that other factors, like the expectations which play the largest role, influence this indicator.

In early 2010, most financial analysts believed that if the negative impact of political friction in our country will cease, foreign exchange rate against the euro will remain at a relatively stable level. If the agreement with IMF will be held under the initial conditions, analysts from Commerzbank, Nomura International, JP Morgan or SocieteGenerale made a forecast for exchange rate at the end of 2010 of 3.9 - 4 EUR/RON after a slight depreciation recorded in the first half of the year.

Early optimistic predictions have not materialized as the measures adopted over night in late June resulted in an "explosion" of the exchange rate: domestic currency depreciated by 2% in just four days. While the increase in VAT by 5 percentage points and lower wages for the employees from the public sector by 25% led to the development of the agreement with the Fund and Romania received the next part of the loan, social tensions have worsened since August (when the measures were reflected ever more strongly at consumption level).

As a result of adverse macroeconomic developments, financial analysts expectations worsened, in September, Raiffeisen Bank rate forecast to EUR/RON for the yearend of 4.4, while Unicredit are slightly more optimistic expectations: 4.35 EUR/RON. Given the high degree of interdependence between the current account deficit and exchange rate and that approximately 70% of Romania's foreign trade is conducted with EU countries, this evolution can provide a worsening of the payments situation balance.

Due to global macroeconomic developments and the depreciation of the euro against the US dollar, the Romanian leu may be vulnerable in this segment of the forex market, registering a sharp depreciation against the American currency. As this currency was also preferred for the credit operations, the percentage of bad loans are likely to increase and Romania may have to ask for private loans in order to recapitalize the lack of funds from banks. This need for resources will translate to additional tension on the exchange rate.

A difficult moment will occur in May 2011 when the current agreement will be completed and when the authorities will have to find sources of funding. As already announced, the Government will try in the first half of next year to establish a new deal with IMF, but in order to obtain it the macroeconomic policy must be consistent, public sector must be restructured and the population must support the measures adopted by the political class.

5. Conclusions

The set of macroeconomic measures adopted pursuant to the Agreement between Romania and the IMF did not have the expected success. Lack of consistency of measures taken, insufficient restructuring and accumulated social tensions within the public sector have rendered the adopted financial support less than effective. According to Croitoru (2010, p. 2), the financial crisis and the prospects for economic growth have diminished the risk associated with external imbalances, but together with populist measures has increased the concerns about fiscal sustainability. In the medium term, the challenge is to ensure fiscal sustainability without endangering growth prospects and without lags behind other Central European countries from the EU.

Agreement with the International Monetary Fund resulted in lower pressures for the leu depreciation and thus a ceteris paribus decrease in inflationary pressures occurring through the exchange rate channel, as Isărescu (2009, p. 34) also states, but in an economical environment which shows no sign of recovery, it will be insufficient to maintain the current exchange rate.

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ASSESSING FISCAL STIMULUS EFFICIECY IN POLAND AND GREECE

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Abstract. *The study of private sector response to fiscal policy decisions is a topic of macroeconomic research which has drawn much attention throughout the years. Recently, in the context of the economic crisis, a number of issues in the area of fiscal policy are being revisited and reevaluated. This paper attempts to study the impact of fiscal policy on private consumption and economic growth in two European Union countries, Greece and Poland. We find that there is a strong connection between fiscal policy and output in Poland. For Greece, the influence of fiscal policy on output is irrelevant.*

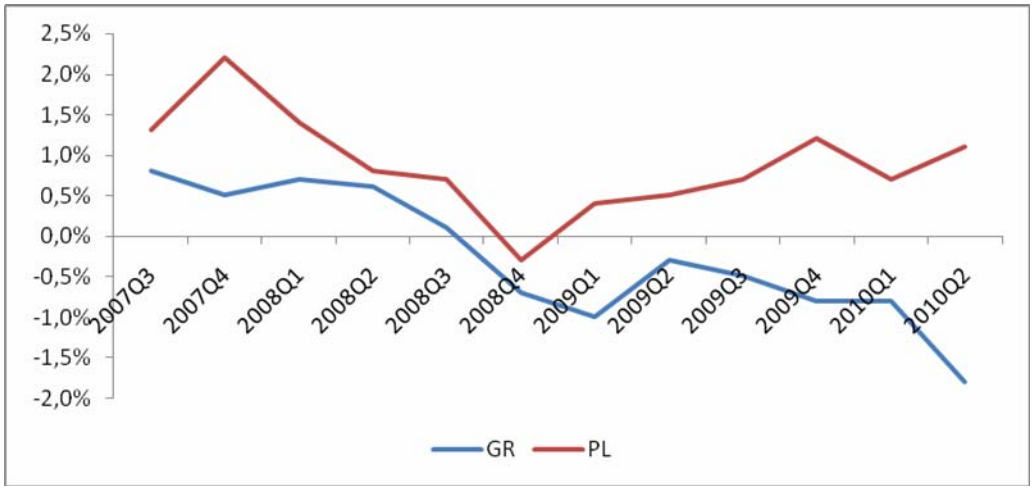
Keywords: fiscal policy; multiplier effect; Ricardian behavior; Keynesian behavior.

JEL Codes: E21, E62.
REL Codes: 8K, 10D.

1. Introduction

The study of private sector response to fiscal policy decisions is a topic of macroeconomic research which has drawn much attention throughout the years. Recently, in the context of the economic crisis, a number of issues in the area of fiscal policy are being revisited and reevaluated. The need for such endeavors is straightforward: fiscal policy has the key role in restoring economies which are being affected by the economic crisis back on a track of sustainable growth.

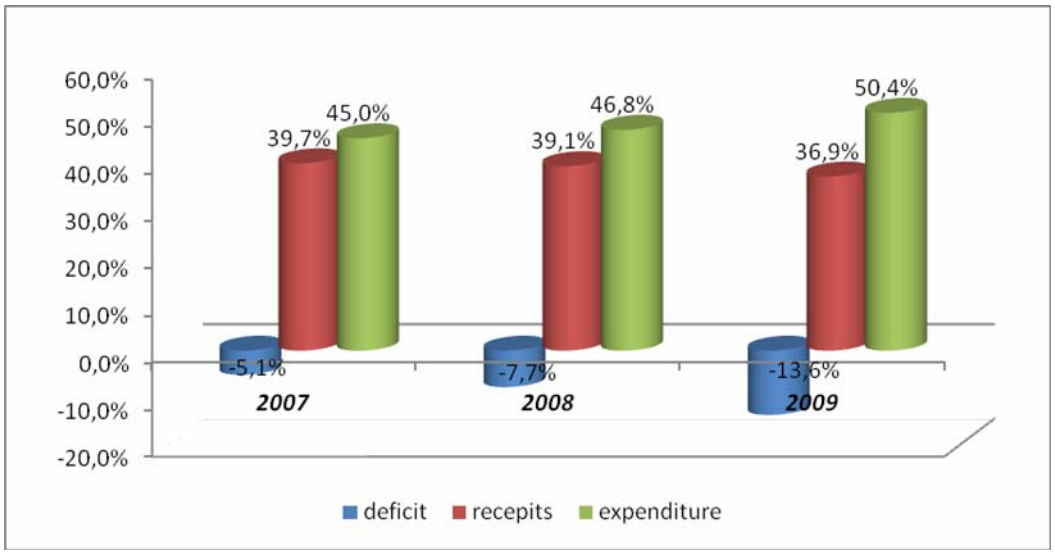
This paper attempts to study the impact of fiscal policy on private consumption and economic growth in two European Union countries, namely Greece and Poland. Choosing these two countries is motivated by the fact that both of them have been affected by the economic crisis, however, the magnitude of the impact differs very much (Figure 1).



Source: Eurostat.

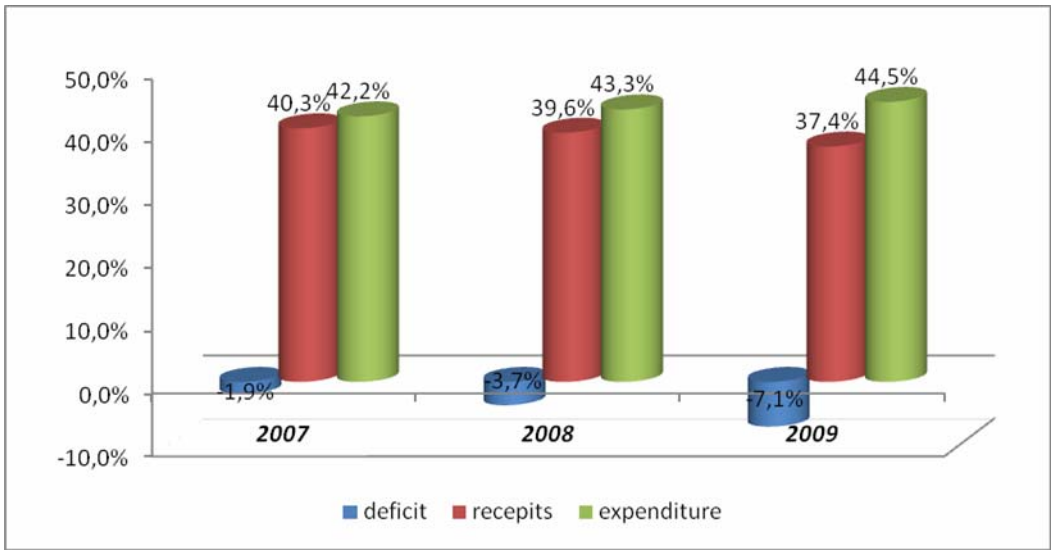
Figure 1. *Quarterly economic growth in Poland and Greece 2007Q3-2010Q2*

The fiscal policy response to the crisis situation was represented by an increase in the budget deficit, due to an increase in government spending and a decrease in government receipts (Figures 2 and 3).



Source: Eurostat.

Figure 2. *Main fiscal policy variables in Greece 2007-2009 (% GDP)*



Source: Eurostat.

Figure 3. *Main fiscal policy variables in Poland 2007-2009 (%GDP)*

Conventional economic theory (for example, the textbook IS – LM model) states that an expansionary fiscal policy, achieved either through an increase in government spending or a tax cut, triggers a boost in economic activity and an increase in private consumption. This is commonly known as the "(Keynesian) fiscal multiplier effect". Other studies have revealed different relations between fiscal policy and private consumption. Two main theories contradict the fiscal multiplier effect doctrine (Reitschuler, 2008, pp. 119 – 120). One is the Ricardian equivalence proposition, which states that an expansionary fiscal policy has no effect on output or private consumption, because the rational individuals will anticipate a future tax increase to finance the current expansion. This would correspond to a zero effect fiscal multiplier. Another non – Keynesian hypothesis argues for a "negative fiscal multiplier effect", stating that an increase in private consumption can be triggered by a fiscal contraction,

because this would lead to an improvement of individuals' expectations regarding fiscal policy sustainability and their lifetime income. In (Giavazzi, Pagano, 1990), this hypothesis is used to explain the economic evolution of Ireland and Denmark in the 1980s.

Starting with the seminal contribution made by (Barro, 1974), there has been a significant number of papers analyzing this topic. In the current context it is important to determine which of the three hypotheses applies and what is the magnitude of the multiplier effect.

Another way to study Ricardian vs. Keynesian behavior of agents is to look at the relation between the fiscal deficit and the current account deficit of an economy, like in (Nickel and Vansteenkiste, 2008). A significant and direct relation between the two denotes a twin – deficit situation, corresponding to Keynesian behavior (a fiscal stimulus increases the disposable amount of money and encourages imports), whereas a weak or reversed relation is a signal for Ricardian behavior. Both approaches place a key role on the individuals' expectations regarding the sustainability of fiscal policy, and there is widespread consensus that the main economic indicator which bares information on this issue is public debt (some of the papers that reach this conclusion are mentioned in the literature review of (Nickel and Vansteenkiste, 2008)). Either a low and constant level of debt or a gradual decrease of this indicator are signals which indicate sustainable fiscal policy and encourage Keynesian behavior, whereas high levels of debt correspond to Ricardian behavior.

This paper contributes by assessing the influence of public spending and the budget deficit on private consumption and economic growth in Greece and Poland. I also check if the level or dynamic of public debt has an effect on private consumption.

2. The model

I study the effect of fiscal policy on private consumption and economic growth using simple and multiple regression. I build a total of four regression equations, according to the specifications in table 1.

Table 1

Specifications of the regression models

Model	Dependent variable	Independent variable
Model #1	Private consumption	Public spending
Model #2	Private consumption	Budget deficit
Model #3	Economic growth	Public spending
Model #4	Economic growth	Budget deficit

The sample consists of quarterly observations covering the period 2000Q1 – 2010Q1. The data comes from the Eurostat. All the variables are expressed as percentage deviations from the value of the previous period. To account for the fiscal policy transmission mechanism, I include lags of the independent variable (I test for a maximum of 4 lags).

Results show a very weak connection between the dependent variables (private consumption and economic growth) and fiscal policy variables in the case of Greece. The great majority of tested equations represent non – valid models. Annex 1a shows the equation with the highest adjusted R – squared indicator for Greece. The picture is quite different in the case of Poland. The analysis reveals a strong impact of public spending on both private consumption (see annex 1b) and economic growth (see annex 1c). This means that a fiscal stimulus package is likely to have a positive effect in Poland. We can see that the estimates corresponding to the statistically significant variables imply that an increase in public spending triggers an increase in private spending and also a GDP increase. A Ricardian – type effect can account for the negative influence of the fourth lag of public spending on the

dependent variables, but we can see that in the short run the Polish economy has a Keynesian behavior (if government spends mode now, it will increase GDP, but this means that next year's spending may fall and this will jeopardize next year's GDP).

Next, I test whether the level and/or dynamic of public debt has an influence on private consumption For Greece, the model (Annex 2a) includes private consumption as dependent variable (expressed as percentage deviation) and public debt (the current level, and present and previous percentage deviations). For Poland, the model is similar, also including current and lagged public spending as independent variables (Annex 2b). In both cases, the dynamic of public debt has a statistically significant impact on private consumption. In Greece, an increase in public debt triggers a decrease in private consumption. This is a signal of Ricardian behavior, explained by the fact that the public has an unfavorable perception of fiscal sustainability. For Poland, the dynamic of public debt has a positive effect on private consumption, which denotes Keynesian behavior.

3. Conclusions

In this paper I analyzed the influence of fiscal policy variables on private consumption and economic growth in two European Union countries, Greece and Poland. Results show that public spending has a significant and positive effect on private consumption and economic growth in Poland, which means that a fiscal stimulus package is likely to have the desired impact in this country. In Greece, fiscal policy variables do not influence output and consumption. The analysis of the impact of public debt on private consumption also reveals that the Polish economy has a Keynesian behavior, whereas the Greek economy has a Ricardian behavior. This implies that Poland, as opposed to Greece, can use fiscal policy tools to tackle the economic crisis.

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Annex 1a

The influence of public spending on private consumption in Greece

Equation: GR_1 Workfile: CONF_FABBV\mil_eur

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: CONS_DP
Method: Least Squares
Date: 10/15/10 Time: 21:58
Sample (adjusted): 2000Q2 2010Q1
Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.013910	0.003321	4.188422	0.0002
CH_DP	-0.024110	0.029654	-0.813048	0.4218
CH_DP(-1)	-0.040262	0.036381	-1.106663	0.2762
CH_DP(-2)	-0.026452	0.035421	-0.746777	0.4603
CH_DP(-3)	-0.063879	0.036246	-1.762376	0.0870
CH_DP(-4)	-0.045875	0.029602	-1.549708	0.1305

R-squared	0.196271	Mean dependent var	0.009589
Adjusted R-squared	0.078075	S.D. dependent var	0.009729
S.E. of regression	0.009341	Akaike info criterion	-6.371229
Sum squared resid	0.002967	Schwarz criterion	-6.117897
Log likelihood	133.4246	F-statistic	1.660559
Durbin-Watson stat	2.005894	Prob(F-statistic)	0.170852

Annex 1b

The influence of public spending on private consumption in Poland

Equation: PL_1 Workfile: CONF_FABBV\mil_eur

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: PL_DP_C
Method: Least Squares
Date: 10/15/10 Time: 22:49
Sample (adjusted): 2001Q2 2010Q1
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001907	0.007021	0.271661	0.7877
PL_DP_CH	0.587553	0.089053	6.597772	0.0000
PL_DP_CH(-1)	0.068130	0.080638	0.844881	0.4049
PL_DP_CH(-2)	-0.085537	0.076657	-1.115839	0.2733
PL_DP_CH(-3)	0.208048	0.087959	2.365296	0.0247
PL_DP_CH(-4)	-0.246127	0.099004	-2.486018	0.0187

R-squared	0.610231	Mean dependent var	0.010173
Adjusted R-squared	0.545269	S.D. dependent var	0.053604
S.E. of regression	0.036147	Akaike info criterion	-3.651408
Sum squared resid	0.039199	Schwarz criterion	-3.387488
Log likelihood	71.72535	F-statistic	9.393714
Durbin-Watson stat	2.179879	Prob(F-statistic)	0.000018

Annex 1c

The influence of public spending on economic growth in Poland

Equation: PL_3 Workfile: CONF_FABBV\mil_eur

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: PL_PIB_DP
Method: Least Squares
Date: 10/15/10 Time: 22:52
Sample (adjusted): 2001Q2 2010Q1
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009344	0.007412	1.260711	0.2171
PL_DP_CH	0.579744	0.094011	6.166747	0.0000
PL_DP_CH(-1)	0.050274	0.085128	0.590574	0.5592
PL_DP_CH(-2)	-0.075255	0.080925	-0.929933	0.3598
PL_DP_CH(-3)	0.172776	0.092856	1.860689	0.0726
PL_DP_CH(-4)	-0.279408	0.104516	-2.673341	0.0120

R-squared	0.575636	Mean dependent var	0.016364
Adjusted R-squared	0.504909	S.D. dependent var	0.054233
S.E. of regression	0.038160	Akaike info criterion	-3.543048
Sum squared resid	0.043685	Schwarz criterion	-3.279128
Log likelihood	69.77487	F-statistic	8.138809
Durbin-Watson stat	2.005213	Prob(F-statistic)	0.000060

Annex 2a

The influence of public debt on private consumption in Greece

Equation: GR_1 Workfile: CONF_FABBV\mil_eur

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: CONS_DP
Method: Least Squares
Date: 10/15/10 Time: 23:28
Sample (adjusted): 2000Q3 2010Q1
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016584	0.009295	1.784179	0.0831
DAT	-1.23E-08	5.74E-08	-0.214197	0.8316
DAT_DP	-0.286945	0.072121	-3.978648	0.0003
DAT_DP(-1)	-0.056205	0.071799	-0.782800	0.4390

R-squared	0.366812	Mean dependent var	0.009911
Adjusted R-squared	0.312539	S.D. dependent var	0.009639
S.E. of regression	0.007992	Akaike info criterion	-6.723910
Sum squared resid	0.002235	Schwarz criterion	-6.553288
Log likelihood	135.1162	F-statistic	6.758622
Durbin-Watson stat	2.164179	Prob(F-statistic)	0.001026

Annex 2b

The influence of public debt on private consumption in Poland

Equation: PL_3 Workfile: CONF_FABBV\mil_eur

View | Proc | Object | Print | Name | Freeze | Estimate | Forecast | Stats | Resids

Dependent Variable: PL_PIB_DP
Method: Least Squares
Date: 10/15/10 Time: 23:17
Sample (adjusted): 2001Q2 2010Q1
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.027749	0.028129	-0.986462	0.3327
PL_DP_CH	0.252040	0.099322	2.537603	0.0172
PL_DP_CH(-1)	-0.075485	0.092498	-0.816073	0.4216
PL_DP_CH(-2)	0.040065	0.067993	0.589251	0.5606
PL_DP_CH(-3)	0.185643	0.074659	2.486546	0.0194
PL_DP_CH(-4)	-0.132885	0.089104	-1.491345	0.1475
PL_DAT	2.08E-07	2.90E-07	0.717173	0.4794
PL_DP_DAT	0.561333	0.149820	3.746708	0.0009
PL_DP_DAT(-1)	0.509310	0.172363	2.954872	0.0064

R-squared	0.772631	Mean dependent var	0.016364
Adjusted R-squared	0.705262	S.D. dependent var	0.054233
S.E. of regression	0.029443	Akaike info criterion	-4.000399
Sum squared resid	0.023406	Schwarz criterion	-3.604519
Log likelihood	81.00718	F-statistic	11.46871
Durbin-Watson stat	1.778708	Prob(F-statistic)	0.000001

APPROACH OF CORRUPTION AS A POTENTIAL THREAT TO THE CURRENT ECONOMY AND NATIONAL SECURITY. THE CASE OF ROMANIA

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Abstract. *Socio-political effects of corruption is manifested by functional, political and moral degradation of local public authorities, which is a result of the expansion of political corruption, by reducing the transparent and accountable political power or by social tensions and increasing impoverishment of the population.*

În the executive activity, corruption has an effect the reduced quality of public administration, the existence of an informal decision-making system and close links between organized crime, corrupt officials and politicians.

Outwardly of corruption effects, in international relations, is manifested by the conduct of incompetent, irresponsible, provocative and subjective – conventional behavior of persons in positions of responsibility which, in dealing with foreign partners, primarily promotes personal and corporate interests against national interests, which, inevitably, undermines the country's image and credibility as a partner in international relations.

Keywords: corruption; anticorruption strategy; economic freedom.

JEL Codes: H26, H30, A13, A14, K3.

1. Introduction

It is not necessary to be adept of alarmist or panicard ideas to see that a threat, under various forms of manifestation, over the time, was always present in developing relations between people, that has perfected the specific methods of action, standing the myriad causes of conflict situations that have shadowed the evolution of human society, both socially and economically.

Among the priorities of economic, political and social needs of each country we must include the prevention and combating corruption. Combating this phenomenon is a long process, corruption can not be extirpated, but can and must be reduced by rigorous control, by the application of preventive measures, aimed to removing the conditions and criminological factors that generate it and detection of direct acts of corruption and legal liability of persons who are guilty by committing such acts.

It also requires completing the preventive measures and action to counter the phenomenon, with education measures for population in the spirit of intolerance against corruption in order to obtain support for its anti-corruption campaigns promoted by public authorities.

2. Theoretical background

In the context of internationalization of corruption and the emergence of new forms of crime, most states manifest concern over this intensified phenomenon in recent years, resulted in the adoption of policies and institutional mechanisms at European level and beyond.

A rigor in using terms with which we operate in this paper will give meaning and value of speech and synergistic action, as defined by the dictionaries and glossaries of security occurred lately in the world, most often born of controversy in establishing cause-relation effect. Some definitions relate to the protection of hazards (objective security), others at the feeling of safety (subjective security) or at the absence of doubt (confidence in own knowledge).

Also important is full understanding of terms, especially those imported from another language so that no confusion arise in understanding the speech with serious attitudinal consequences. Differences between concepts such as proximate analysis are given and the specific difference that reveals the essential features of each, highlighting their complex picture in which specific elements are combined with multiple hypostasis which is used by field experts and beyond.

From this perspective, an illustrated presentation of the indicators, to individualize each concept, can provide a picture as synthetic, as it is enlightening on the value, place and role in the formulation of discourse on issues of defense and security:

Figure 1. *Indicators for assessing vulnerabilities*

Threats, hazards, risks and vulnerabilities, all to a place or part of them, are different aware in the countries of the world, even if they are located in the same area.

Sensitivities generated by open historical problems, the economic development, military power, hegemonic ambitions, the fundamental national interests, membership or not to a functioning military alliance, etc., give the perception of meanings, nuances and national particularities or group interests. Therefore the extent and importance of spheres affected by corruption, require a strategic approach to this phenomenon, therefore it is necessary to develop and implement a national strategy to prevent and combat it.

3. Method and results

The opportunity of developing and implementing a strategy to prevent and combat the corruption at national level is determined by the inability to root out corruption awareness only through the application of penal-restrictive measures, it needs for new approaches to this complex phenomenon, including joint actions to prevent corruption in the detection, prosecution and punishment of it.

Anti-corruption strategy aims to:

- identification of areas affected, the conditions that encourage corruption, prevention and strengthening of measures to detect and combat the phenomenon;
- compliance of principle of separation of powers and their involvement in a strictly constitutional and legal framework;
- adaptation to the requirements of the national legislation and international law;
- ensuring transparency of public institutions;
- involving civil society and private sector in preventing corruption, creating an atmosphere of intolerance towards corruption.

All elements of the strategy must act simultaneously and must be effectively coordinated in order to be truly interdependent, so that the positive effect of one of them to strengthen the other and vice versa.

Consistently, Romania has addressed fight against corruption on three levels, namely prevention, control and sanction, based on the seriousness of the consequences that can result in non-compliance or the failure of rules established. Thus, prevention mechanisms have been designed to ensure greater transparency, to reduce, as far as circumventing the law, so, through prevention activities are identified and reduce the vulnerability to corruption of public entities.

Actions in the sphere of combating corruption is even stronger than those for prevention and, usually, can lead to administrative sanctions. Measures to combat corruption occurs when there has been a breach of legal norms, whose legal consequences are very serious but, rather possessing the potential to lead to corruption, rather than an act of corruption itself. In this category we can include policies on avoiding conflicts of interests and incompatibilities, the role of disciplinary committees, mechanisms to combat money laundering, administrative inspections, auditing, inspection bodies, etc.

In terms of sanctioning, it relates to those situations in which corruption has already occurred, the consequences have been established, and the only intervention that can be held is criminal punishment of the guilty, to avoid perpetuating these acts. Sanctioning mechanisms are institutional competence of the judiciary sistem.

Usually, the measures to fight against corruption is not limited to the legislative, they have implications at both, the institutional and policy level, and we can talk about a correlation of the various legislative and institutional measures at sectoral level. This approach assumes that, in essence, most developments are at the legislative level, and only the light effects can be distinguished as applying to a structure or another. Thus, the trends identified are those purely legislative, substantive or procedural, with the effect on the scope of their applicability or on the rules which it refers. The next step is identifying the institutional developments, followed by legislative changes arising from their application to existing institutional context. It could find that a lack of adequacy of measures taken at real institutional reforms led to failure. The latter step, considered as the most important, is the public policy, that is characterized by a holistic approach and not one-off phenomenon. In this context, public policy developments, capture both legislative and institutional developments, all adopted in order to attain the objective determined by a public policy and produce a real impact in preventing, combating and sanctioning corruption.

Official statistics data and those provided by NGOs specializing in this field, the results of scientific research, law enforcement and information sociocriminologice clear that corruption has affected the political and institutional area, economic, judicial and law area, training and education area, social and medical assistance area, international trade and investment area.

The economic impact of corruption is manifested in various ways. Bureaucratic delay in the paperwork, state failure to provide security for manufacturers, lobbying, protection, traffic of influence, unfair competition, excessive state regulations and controls that affect the mechanisms of market economy and free competition, deterring potential investors and

private initiative, lead increases the cost of public projects, reduce economic efficiency, the extension of tax evasion, reduce payments to the budget and economy undevelopment

In Romania, the legal framework on the protection of the European Community has been aligned with standards, in this regard was adopted the legal framework for combating fraud and counterfeiting of means of payment, to protect the euro against counterfeiting and corruption. In this context, in 2002 was established National Anti-Corruption Prosecutor and in 2004 the Anti-Fraud Office and Community Service for combating organized crime and corruption offenses.

The prime minister control departament was appointed as a liaison with OLAF, the functions of that office was taken over by the Prime Minister's Inspection Division. It was also adopted, Corruption Strategy which includes the National Corruption Prevention Programme and National Action Plan against Corruption.

Through Government Decision no. 231/2005 were approved National Anti-Corruption Strategy for the 2005-2007 period and Action Plan for implementation national anti-corruption strategy during the 2005-2007 period and through the Government Decision no. 609 of 4 June 2008 was approved National Anti-Corruption Strategy on vulnerable sectors and local government for 2008-2010 period. The strategy has been tasked with preventing and combating corruption by improving and the rigorous application of the regulatory framework, legislative coherence and stability and institutional strengthening of the entities with tasks in the field. The measures adopted to implement the government strategy aimed primarily legislative harmonization and coordination of the legal framework (most measures of the Action Plan is the legislative).

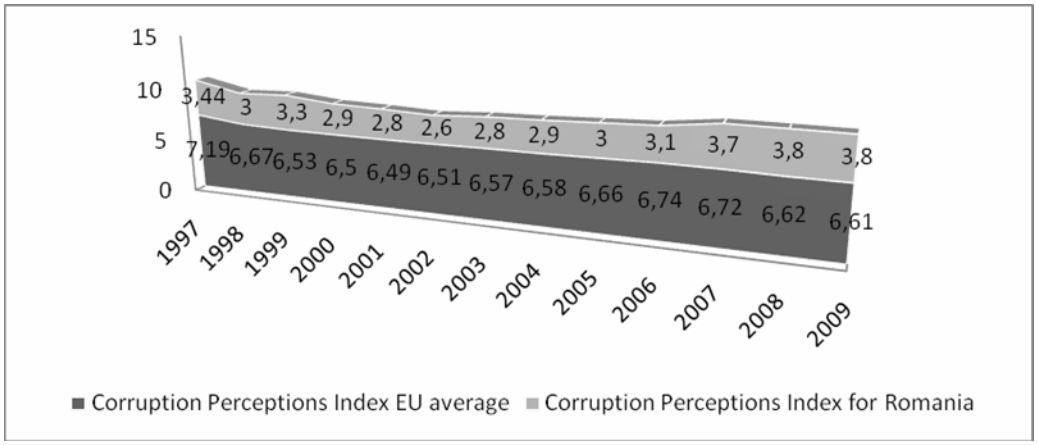
Regarding the development of sectoral strategies and detailed action plans on combating corruption in other public sectors considered vulnerable, to the authorities with control authority level (National Customs Authority, the Financial Guard, the Ministry of Interior and Administrative Reform), it have been approved strategies preventing and combating corruption and related action plans.

Also, projects and initiatives have been implemented in partnership with nongovernmental organizations, that had a major impact towards increasing the transparency of local government by developing local transparency councils, bringing together local government and civil society organizations at the local level, which resulted in an increase of administrative transparency, civic participation in decision-making processes and an active monitoring of the procurement process and budget implementation.

However, until now, the corruption of public administration has not actually been quantified. To achieve a more accurate picture of the extent of corruption in Romania, this paper will present the most recent reports of reputable non-governmental organizations such as Transparency International, Global Integrity, presenting the main indicators for corruption, as:

- Corruption Perception Index that ranks 150 countries according to the degree to which corruption is perceived among officials and politicians, based on data on corruption in specialized surveys conducted by several independent and reputable institutions;
- Global Corruption Barometer is a survey that measures public perception of corruption and human experiences related to this phenomenon;
- Bribe Payers Index is a survey that assesses the supply of corruption in international business transactions, disposal of companies, in industrialized countries, to use bribery outside the country of origin.

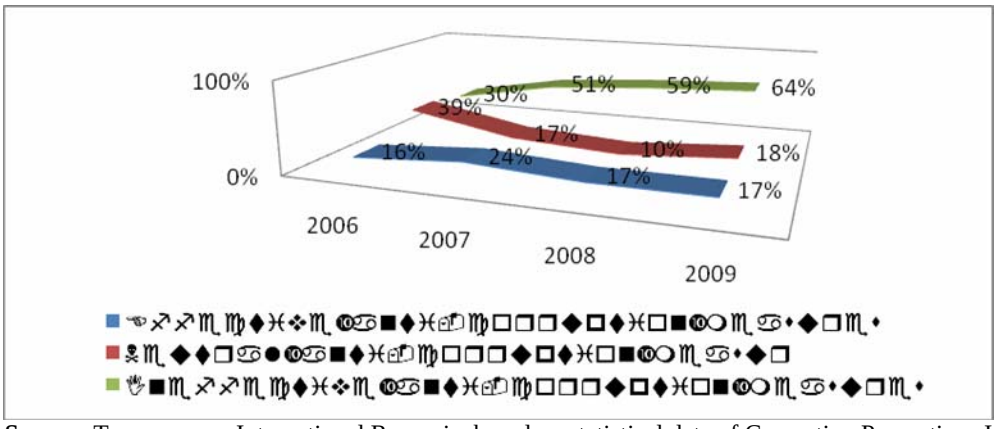
If we follow the Corruption Perceptions Index in Romania, compared with the average EU level we observe a stagnation in the last three years, about 3.8 points of 10, which can be explained by the lack of strategic leadership in set up the legislative and institutional measures, adding a series of conflicts between the state powers, conflicts that have led to destabilization and lack of credibility of measures adopted by them, with the final result an excessive vulnerability damage to all pillars of integrity and credibility of reforms, and for Romania, in general .



Source: Transparency International Romania, based on statistical data of Corruption Perceptions Index and Global Corruption Barometer.

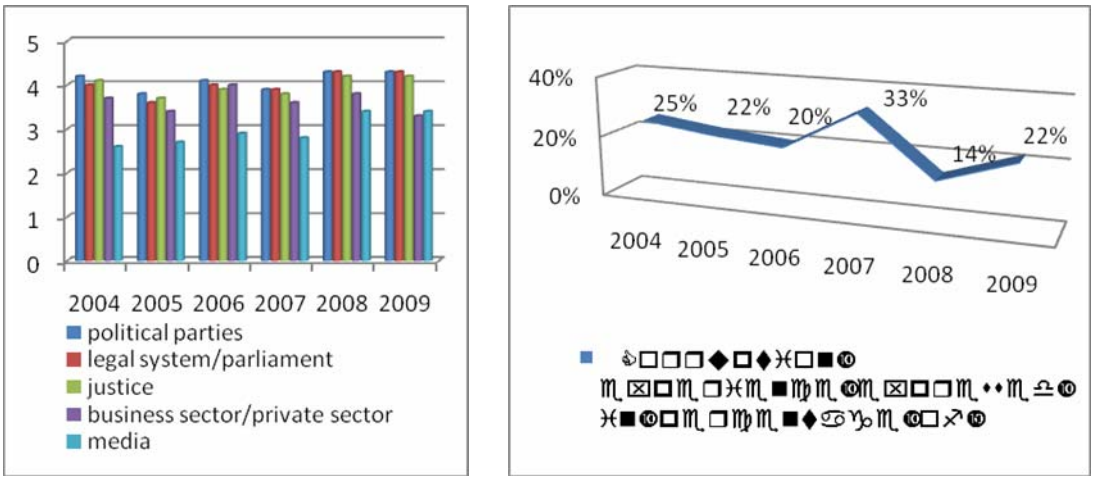
Figure 2. *Evolution of corruption perceptions index in the period 1997-2009*

If we consider the information regarding trends of corruption in public perception, information provided by the Global Corruption Barometer, we can make an assessment of change over time spent by the institutions deemed to be the most corrupt (1 - not at all corrupt, 5 - extremely corrupt), the effectiveness of governments' efforts to fight corruption, and the number of people paying bribes:



Source: Transparency International Romania, based on statistical data of Corruption Perceptions Index and Global Corruption Barometer.

Figure 3. *Efficiency of anticorruption measures undertaken during 2006-2009 period*



Source: Transparency International Romania, based on statistical data of Corruption Perceptions Index and Global Corruption Barometer.

Figure 4. *Evolution of corruption in Romania institutions and in percentages of bribe payers*

Given the extremely poor results highlighted, we note that corruption is widely perceived, in Romania it is necessary to transpose the anti-corruption reforms from a formal framework into concrete, tangible and sustainable results.

In this respect, it is necessary to support anti-corruption reforms in a real and strong political will, leading to effective enforcement mechanisms to combat and prevent corruption, the previous event, as well as effective enforcement mechanisms, when committed acts of corruption, including the delivery of such penalties to discourage the phenomenon.

Therefore we only have to note that Romania is a worrying situation in terms of deeper structural reforms, confronting it with institutional challenges in terms of overall economic freedom as a result of widespread corruption, given is an advanced form of the sins committed that economic freedom (corresponding to an index of 100%) provides an absolute right of property, full freedom for the movement of goods, services, capital and labor, and total absence of interference or restraint from state. In 2010, Romania has an economic freedom index of 64.2%, registering a score better than 1.0% from 2009, reflecting improvements in the half light, however, of the 10 evaluation criteria considered, namely :

- business – degree to which businesses are facilitated by the establishment and until the liquidation of a business;
- trade policy – the extent to which the tariff and non-tariff trade regime affect foreign relations;
- fiscal policy – evaluating the national taxes sistem;
- budgetary expenditures – the extent to which the state provide public goods with real value for the population at minimal cost;
- monetary policy – assessment of price stability in conjunction with the existence of price control measures;
- investment – the extent to which capital flows are liberalized, and in particular foreign capital;
- banking and financial system – assessing the banking – financial security of state intervention in business sector;
- property rights – the degree to which private property is governed by relevant laws and is guaranteed by the state;
- corruption – the extent to which businesses perceive corruption at the governmental, judicial and administrative level;
- employment – the employer-employee interaction in relation to restrictive government measures.

Based on the above criteria, national economies are divided into five categories: free (index 80%-100%), mostly free, (70.0% to 79.9%), moderately free (from 60.0% to 69.9%) mostly unfree (from 50.0 to 59.9%) and repressed (from 0.0 to 49.9%).

Table 1

The amount of the assessment criteria for Romania during 2005-2010 and assessing progress of index of economic freedom in 2011

- % -

Field	2005	2006	2007	2008	2009	2010	Evolution 2011
Total average index	50.8	58.9	61.3	63.2	66.3	64.2	↓
Business freedom	30	74.5	70.9	74.9	76.2	72,5	↓
Trade freedom	65.4	63.4	74	85.8	83.4	87,5	↑
Fiscal freedom	80.1	91.7	91.7	87	70.2	85,8	↓
Government expenditures	74.8	74.2	74.9	70	47.1	59,8	↓
Monetary freedom	62.6	66.6	69.7	75	77.9	73,3	↓
Investment freedom	30	50	50	60	64.7	75,0	↑
Financial freedom	50	50	60	50	65.1	50,0	-
Property freedom	30	30	30	35	61.3	40,0	↑
Freedom from corruption	28	29	30	37	56.6	38,0	↑
Labor freedom	57	59.8	61.4	57.1	60.9	60,4	↑

Source: Index of economic freedom world rankings.

Certainly, with the increase in judicial efficiency, reducing the incidence of high-level corruption in local government, the Romanian society will be balanced by principles of fairness and equity, but, ensuring the freedom and economic development remains a sequential process which requires substantiation other concepts related to evolutionary typology of society.

4. Conclusions

However relevant it would be, the indicators for measuring corruption analyzed individually can not reflect that only a partial picture of overall levels found in our country, however, they provides an important benchmark for setting priorities in an attempt on the prevention of corruption in Romania.

Therefore, we consider a major objective of prevent corruption policy involving civil society and raise public awareness about the causes and consequences of corruption. Developing inter-institutional cooperation and relations with civil society should focus on:

- facilitate cooperation between institutions with attributions in preventing corruption, and between them and civil society;
- coordinating the efforts of these institutions by facilitating the exchange of information;
- encouraging the deployment of common actions to scale, in order to obtain human or technical resources, identifying and removing the main obstacles encountered in practice, providing a complete and consistent efforts of authorities in this field.

In the fight against corruption, implementation capacity should be significantly strengthened and existing legislation must be applied rigorously. Romania should implement its plans for permanent settlement of the problems they face, and in particular, to improve the administrative capacity of relevant institutions in the field, to implement an effective reform

of the legal system, to recruit and train staff and take a significant impact on corruption, because only in this way can highlight the ethics of governance, namely, the degree of moral health of a society.

References

National Anti-Corruption Strategy for the period 2005-2007

Action Plan for implementation the national anti-corruption strategy during the 2005-2007 period

National anti-corruption strategy on vulnerable sectors and local government for the period 2008-2010

Index of Economic Freedom World Rankings

Transparency International Romania, Policies and Studies

CREDIT RISK PRICING AND THE COST OF RISK: A TWO WAY AVENUE[*]

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Abstract. *This paper seeks to investigate the banking sector's internal mechanisms that might bring about a negative spiral of credit risk by building a model for the interaction between the increase of the credit risk premiums and that of the provision expenses. Statistical results suggest that while the change in expected losses on credit portfolio is a strong determinant in credit risk pricing, a higher risk premium is one of the major factors of provision expenses in Romania. This confirms that overshooting credit risk premiums could affect banking stability. Nevertheless, the empirical analysis does not reject the rational expectations hypothesis in credit risk pricing.*

Keywords: credit risk premium; provision expenses; negative spirals of credit risk; financial deleveraging; financial performance.

JEL Codes: G01, G17, G21, G32, G33.
REL Codes: 10D, 10E, 10I, 11C.

Introduction

Although the natural vulnerabilities of the banking sector are largely penalised by external factors, turning into financial crises, the very behaviour of credit institutions may become a major source of systemic risk. The collective revelation of credit institutions as regards the imminence of specific risks materialising, which often follows long periods of underestimating probable losses, can trigger a broad-based financial deleveraging on many tiers of bank assets. Once the decline in the financing of the economy gets underway, strong turbulences might become manifest on financial markets, translating into extremely treacherous developments in terms of both liquidity and prices on equity, money and foreign exchange markets. Even though the shift of credit institutions towards more resilient areas of the balance sheet appears to be the best solution at individual level, the timing of the self-preservation behaviour in the face of such risks materialising gives an impetus to the contraction (correction) of financial asset prices, thereby fuelling negative spirals (cycles) on financial markets.

Negative spirals of credit risk are a major threat to financial stability, since they swiftly reduce the solvency of banks and strongly depress money supply economy-wide (financial deleveraging), thereby dampenining real sector financing. Early signs of a possible adverse cycle of credit risk come from the fast increase in provisioning costs, the sharp reduction in lending and the downturn in the financing of the economy. These developments are most often followed by the considerable rise in risk premiums charged by banks with a view to covering the expected hike in provisioning costs by raising net interest income.

Empirical research in this field are, however, but a few, especially in the case of emerging economies. Quantitative approaches are generally confined to credit risk models which include interest rates or various measures of risk premiums among their determinants. The methodological solutions applied in assessing the impact of macroeconomic conditions

[*] This work was supported from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/89/1.5/S/59184 „*Performance and excellence in postdoctoral research in Romanian economics science domain*".

on the repayment capability of individual debtors consist either in adding aggregate indicators to the explanatory variables of the scoring function (Bunn, Redwood, 2003, Antunes, Ribeiro, Antao, 2005) or using linkage functions modelling the dynamics of relevant financial positions in the debtor's balance sheet and profit-and-loss account by means of equations that include macroeconomic variables (de Bandt, Bruneau, El Amri, 2008). In regard to aggregate credit risk models, be they economy-wide models or models with sectoral specifications, the methodological solutions consist in using multiple regressions with macroeconomic factors. Against this background, the dependent variables is expressed either via the non-performing loan ratio or the credit risk provision rate (Hoggarth, Whitley, 2003, Dermine J., Neto de Carvalho, 2008), whereas the prevailing econometric techniques are represented by SUR-type regressions or VAR models (Jorda, 2005, Drehmann et al., 2006, Jimenez, Mencia, 2007). All these approaches do not however consider the successive effects in several rounds (cycles) of the pass-through of the mutual interaction between the growth rate of risk premiums and that of non-performing loans.

In this context, the paper is aimed at exploring the banking sector's internal mechanisms that might bring about a negative spiral of credit risk, which is seen as a serious threat to financial stability owing to its impact on bank solvency. In order to find the right answer to this line of research, the operational goal of this paper is to build a simplified econometric model of the interaction between the increase of the risk premium and provisioning rate.

The research work has four sections and ends with the main findings and future lines of research. The first section gives an overview of the key ideas in dedicated literature and practice focusing on credit risk macroeconomic models and emphasising the quantitative assessment issues and the explanatory variables resorted to in this paper. The second section describes the analytical framework underlying the negative spirals of credit risk. The third section presents the data employed and provides details on both the economic rationale and the statistical evidence that prompted the selection of the explanatory variables. The fourth section summarises the major empirical issues regarding the preparation and testing of the simplified macroeconomic model for credit risk. They were applied in a dry-run that allows to assess the risk of financial deleveraging following an overly high upsurge in risk premiums.

Methodological framework

The functional relationship between risk premiums (*rp*) and the provisioning charge rate[(1)] (*pcr*) is expressed by a system of equations alongside the two components. The likelihood of the emergence of a negative spiral of credit risk, as well as its pass-through speed, is suggested by the strength of the interaction between the two dependent variables.

$$\begin{cases} d(rp_t) = \alpha \times d(PCR^e_{t+4}) + \beta \times d\left(NGC^e_{t+4}\right) + \omega \times d(CDS_{t-1}) + \varphi \times d\left(ER_{t-r}\right) + \varepsilon_{pr} \\ d\left(\log \dfrac{PCR_t}{1-PCR_t}\right) = \delta \times d\left(rp_{t-1}\right) + \theta \times \left[d\left(NGC_{t-j}\right) - a\right]^2 + \sum_{i=1}^{n} \gamma_i \times m^i_{t-q} + \varepsilon_{RCP} \end{cases} \quad (1)$$

The change in the risk premium hinges on the expectations regarding the developments in the *provisioning rate* and those concerning the *amount of loans provided to non-bank clients* over a four-quarter horizon and the *change in the CDS 5Y* in terms of sovereign risk. Adding to these are the exchange rate movements whose impact range is to be determined (*r*). The functioning relation is deemed to be linear and the expectations on the non-performing loan ratio are deemed to be rational.

The latter equation is built on the assumption that the functional relationship between the endogenous variable and the explanatory indicators is described by the logit function. This approach is eligible in terms of the economic rationale stating that the relationship between the non-performing loan ratio and the economic environment is characterised by non-linearity. The set of determinants is rounded up by banking variables such as the change in the *risk*

premium and the *square of the (sustainable) deviation of the growth rate of outstanding credit to non-government*(2).

The composite index of the macroeconomic environment is the result of a linear combination of economic indicators, as follows:

$$y_t = \gamma^0 + \left[\gamma^1 \quad \gamma^2 \quad \dots \quad \gamma^n\right] \times \begin{bmatrix} m_t^1 \\ m_t^2 \\ \dots \\ m_t^m \end{bmatrix} + \varepsilon_t \qquad (2)$$

where γ_s is the vector of coefficients (sensitivities) applied to the vector of levels of *n* macroeconomic variables m_t, ε_t is the error term, which is independent from m_t and identical and normally distributed, namely $\varepsilon_t \sim N(0, \sigma_\varepsilon)$ and $\varepsilon_t \sim N(0, \Sigma_\varepsilon)$.

From an economic perspective, the signs of the coefficients of entry indicators show the direction of the impact arising from such variables on the levels of dependent variables, while their levels are quasi-elasticities suggesting the intensity whereby the exogenous variable determines the explained variable.

The individual impact of determinants on the concurrent developments in dependent variables is examined based on first-order differences (on a quarterly basis), with the estimation technique employed by the author being the SUR method. This solution improves the estimation efficiency given that the significant correlation between the dependent variables embedded in the equations may induce a high correlation of error terms.

Data employed

The data employed for estimating the equation systems cover quarterly information for the period 2003 Q2(3) – 2009 Q2, while those for the dry-run cover the period 2009 Q3 – 2010 Q2.

The relevant variables consist in seven economic indicators which were selected from the dedicated theory and practice. The source of data regarding financial indicators (risk premium, provisioning rate, credit to non-government, exchange rate) is the statistics published by the National Bank of Romania, whereas macroeconomic data (unemployment rate, whole-economy gross average wage) are taken from the reports released by the National Institute of Statistics. The CDS spread was provided by Bloomberg. The indicators have been empirically checked and eventually only the statistically significant model configurations have been taken into account.

Empirical analysis results

Econometric tests performed for Romania confirm the economic insight that the estimations for the provisioning rate, the CDS spread and the exchange rate have a favourable bearing on the dynamics of the risk premium perceived by credit institutions. At the same time, expectations of the developments in loans outstanding have a negative bearing (Table 1).

Table 1

The configuration of the explanatory model for risk premium dynamics

Variable (quarterly changes)	coefficient	lag/lead
Provisioning rate	0.2832***	4
Loans outstanding	-2.422***	1
5Y CDS	0.2992***	-1
Exchange rate	7.1611***	-3
Adjusted squared R	0.555224	

Statistical results show the following: *(i) a one percentage point increase in the provisioning rate estimated for the following year entails a widening of the risk premium in around 0.3 percentage points; (ii) expectations of a decline in the loans outstanding over the following year leads most likely to a doubling of the risk premium; (iii) roughly 30 percent of the widening of the five-year CDS spread is reflected by the increase in the risk premium; and (iv) currency depreciation brings about a major increase in the risk premium with a three-quarter lag.*

Empirical analysis of the sensitivity of the provisioning rate to the dynamics of the parameters of financial deleveraging and the macroeconomic picture confirms the strong linkage between economic cycles and the quality of bank assets in Romania. By using elements in the two groups of determinants to estimate polynomial regressions, the outcome after testing the estimation sample is similar to those of other research works modelling the dynamics of the provisioning rate (Table 2).

Table 2

The configuration of the explanatory model for provisioning rate dynamics

Variable (quarterly changes)	M2 (non-linear)	
	coefficient	lag
Risk premium	0.3151*	1
Squared deviation of dynamics of loans outstanding from their natural level	43.068***	1
Unemployment rate	1.0173***	3
Gross average wage	-2.8718**	0
Dummy: revision of provisioning conditions (2009 Q2)	-1.5167***	0
Adjusted squared R	0.461056	

The levels of statistical tests show that the set of resulting models observe the requirements of good econometric performance. The coefficients have statistical significance(4) and their signs are in line with economic insight. Thus, a large part of the change in the risk premium is reflected by the developments in the provisioning rate over one quarter and the (positive or negative) deviation of the growth rate of credit to non-government from its sustainable level (assessed at 2.5 percent on a quarterly basis) could have substantial adverse effects on the quality of bank loans over a time horizon of one year. At the same time, the econometric outcome confirms the economic insight that the dynamics of labour market is a key factor for the developments in the provisioning costs.

Concluding remarks

The novel nature of this paper arises from the attempt at outlining the mutual interaction between the increase of the risk premium and that of provisioning rate in Romania. The strength of the bilateral dependence between the risk premium and the provisioning rate confirms the economic insight that out-of-proportion expectations of higher provisioning costs might trigger a negative spiral of credit risk in Romania. The exit from such a financial "whirlwind" is highly conditional upon the recovery of lending, as the economic rebound marked by lower unemployment and bigger household income cannot in itself cause a reversal in the trend of non-performing loans and a reduction in the provisioning rate. Another major parameter is the macroeconomic policy coherence that weighs on CDS spread dynamics and the relative stability of the exchange rate, which are instrumental for the largely synchronised decisions of credit institutions to expand risk premiums charged to debtor clients. Nevertheless, the empirical results do not reject the rational expectations hypothesis in credit risk pricing.

Notes

(1) The provisioning rate is calculated as the ratio of the cost of provisions for credit risk and the stock of credit to non-government.
(2) The sustainable level of the growth rate of credit to non-government ("a") is to be determined via calibration within the empirical analysis.
(3) The beginning of the estimation period is determined by the availability of data concerning the risk premium for households' foreign currency exposure and the sovereign CDS spread. At the same time, mid-2003 is the start of the recovery of financial intermediation in Romania, once banks have shifted their focus onto retail clients.
(4) Specifications ***, ** and * have the usual meanings relating to the statistical significance of estimated coefficients.

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CONTRADICTORY ASPECTS ASSESSMENT ON INTANGIBLE ASSETS

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Abstract. *In Romania, the evaluation of intangible assets is rarely used due to extremely poor casuistry. From a sample of 100 companies we analyzed, only 4.5% revealed the existence of intangible assets worth less than 3% of total assets and none of the companies has not reviewed the assets. In crisis conditions, the study concludes that companies value decreases (bad will), and while economic growth increases the value of companies (good will). An effective leadership in the crisis assessment may be used as a method of intangible assets to increase the liquidity of the company, by not paying income tax.*

Keywords: residual value; Bad Will; Good Will; the capitalization of cost savings; fee.

JEL Codes: E2, E22.
REL Code: 11F.

1. Introduction

Many of the intangible assets owned by companies (or more correctly in most enterprises in Romania) are not included in their balance sheet.

In my opinion intangible assets should be included in the balance sheet of the business for at least two reasons:

1. to better reflect the development potential of a business;
2. as a form of defense upon the abuse of company taxation in the state and local authorities.

The fact is that there are many position papers taken from national and international organizations, accountants and evaluators of businesses, to create a unified vision for the recognition of the value of these assets in financial statements and as a consequence for their evaluation less credible or questionable .

2. The particularities of the intangible assets evaluation

We are presenting a short review of the principals' particularities of the intangible assets evaluation in the minds of Sorin Stan and his collaborators, with the specifically purpose of raising awareness on issues and diversity of knowledge required in the intangible assets evaluation.

Table 1

Characteristics of intangible assets evaluation

Identifiable intangible assets	Preferred evaluation methods (p) and the secondary one (s)	Orientate level of the actualization rate	Critically problems of the method
Management software	Recreation cost (p)		The depreciation quantification The expenditures area
	Comparison method (p)		Insufficient information's
	Profit contribution	> cmpc	Profit allocation
Trained labour	Replacing cost	cmpc	Historical share of the costs of

Identifiable intangible assets	Preferred evaluation methods (p) and the secondary one (s)	Orientate level of the actualization rate	Critically problems of the method
			recruiting, hiring and training of total salary costs
	Profit contribution		Insufficient information's
	Comparison method (s)		Profit allocation
Patents	Costs savings (p)	cmpc	The economical life rested period
	Royalty free	cmpc	idem
	Updating allocated surplus profit	cmpc	idem
	Recreation cost (s)		The expenditures area Depreciation and high risk
Licenses / franchises / authorizations	Profit advantage (p)	cmpc	May be issued on limited terms or renewable (so, forecasted)
	Profit contribution (p)	cmpc	
	Costs savings (p)	cmpc	
Product brands	Royalty free (p)	cmpc	Forecast
	Updating allocated surplus profit (p)	cmpc	Forecast
	Profit contribution (p)	cmpc	When could not be applied the previous methods, idem
	Recreation cost		The expenditures area and theirs updating
Contracts (advertising, purchase, rental)	Updating allocated surplus profit (the unique method)		Different level of the actualization rate
Employment contracts	Economies update generated by a key person		The economical life rested period
Copyrights	Royalty actualization	Different rates	The fixing of two actualization rates
Non-proprietary manufacturing technology secrets, know-how	Updating allocated surplus profit (p)	> cmpc	The economical life rested period; The highly risk quantification
	Costs savings (p)	> cmpc	
Customer lists	Recreation cost (p)	cmpc	The economical life rested period;
	The allocated profit actualization (p)	cmpc	
	Comparison method		Insufficient information's
Non-compete agreement	The difference between CFN with and without Non-compete agreement (p)		The concurrence period and the turnover reducing probability
	The profit loose actualization (p)		idem
Industrial drawings	Recreation cost (p)		Depreciation estimation
	Profit contribution *(s)*	cmpc	The economical life rested period;
Technical library and archive	Recreation cost (the unique method)		The expenditures area
Unfinalised researching and developing projects (IPR&D)	The allocated profit actualization (p)	> cmpc	Residual net profit determination allocated to the researching and developing projects
	Recreation cost (s)		The economical life rested period;

Source: Stan I. şi colaboratorii, *op. cit.*, pp. 90-91.

3. Similarities between the valuation of tangible and intangible assets

In the literature an initial assessment of similarity between the tangible and intangible assets is that both types of assets are evaluated by the same three approaches:

a. the costs;

b. by comparison;

c. by income.

A second similarity is about the concept of value meaning that both types of asset value when we talk about the value it has to be understood that this is a subjective assessment, based on some assumptions which lead to a financial perception in the head (mind) of every person interested in a transaction involving assets.

In my opinion the third similarity between tangible and intangible assets valuation is the use of common concepts that lead to determining the value of an asset such as: the capitalization rate, discount rate, the increase in gross domestic product, basis risk, replacement cost rent, total revenues, total costs, depreciation, gross profit, net profit, dividend tax, cash flow, etc.

4. Differences between the valuation of tangible and intangible assets

I didn't met in practical cases and neither in reference in economic theory or some direct feedback on differences between methods for assessment of tangible and intangible assets. Therefore further I present an opinion resulting from the work required by the Court Law or Court Judgement and economic agents from Galati – Braila area, which I've done in my accounting office with a part of my collaborators.

The main difference is the degree of market data interpretation: a restricted interpretation to tangible assets, while to intangible assets there is a probable interpretation, imaginative, of scenarios, of future capacity evaluation. Obviously in the case of intangible assets imagination, flair, experience, luck plays an important role.

A second distinction is consisting, in my opinion and of my collaborators, in the diversity of methods for estimating value: about 10 methods for tangible assets and over 20 methods for intangible assets.

A third difference lies in the degree of ingenuity in choosing the appropriate method for evaluating an asset. In a tangible asset, imagination plays a lesser role, while for the intangible asset I would say that imagination has no limits. The ingenious you can be, more you can determine a value much closer to reality in an actor's perception meaning of selling – buying act.

5. Case study

Active approach, also known as the approach, the approach based on cost and replacement cost approach, is to correct (adjust) the carrying amounts of individual assets and liabilities towards transforming their enterprise market value.

In this approach there are included two evaluation methods - adjusted net asset method (NAM)

- method asset liquidation or value net of liquidation (VNL).

According GN6 – "Business Valuation", asset-based approach is to "estimate the value of a business and/or using the equity method based on market value of their individual enterprise's assets, minus debts."

The above definition corresponds with the essence of the ANC method. This method directly calculates the amount of capital to shareholders (ACS). Therefore:

ANC = market value of assets - market value of debt

The method involves several steps and the NAM, of which most important are: getting the balance sheet or trial balance, the date of valuation;

- valuation of assets and liabilities, which could mean:
  - taking a book value if corrections are not justified on that value,
  - be the transformation of a book value of assets and liabilities in market value;
- developing "economic balance" and the calculation of net asset corrected.

The method involves hiring an NAM large volume of work from the evaluation team, it involves dividing an enterprise distinct fractions, which must be evaluated individually.

6. Summary of application NAM method

After browsing all stages of evaluation categories of assets, requiring corrections to their book value as of debts, and calculate net asset synthesis Corrected corrections will be made into a table.

Some synthetic conclusions deducted from asset-based approach are:

- Corrected net asset method (NAM) was applied on the assumption that the company evaluated its normal operation will continue in the foreseeable future. The other method of assessment, included in the asset-based approach, but in the event of closure, is called net asset liquidation method (VNL).
- The NAM method to calculate the amount of capital to shareholders and not the amount of capital invested.
- NAM value reflects a control, a control value of capital to shareholders because the buyer has the opportunity to decide the sale of assets or all assets acquired.

Table 2

Net Asset Accounting to 31/08/2010

INDICATOR	31,08,2010
A,NON CURRENT ASSETS	
II, TANGIBLE ASSETS	1,923,987
III, FINANCIAL ASSETS	1,477
NON CURRENT ASSETS - TOTAL	1,925,464
B,LIQUID ASSETS	
I, STOCKS	3,092
II, RECEIVABLE DEBS	357,152
IV,PETTY CASH AND BANK ACCOUNTS	31,617
LIQUID ASSETS - TOTAL	391,861
D, DEBTS: SUMELE CARE TREBUIE PLĂTITE ÎNTR-O PERIOADĂ DE PÂNĂ LA UN AN	1,007,423
E, NET LIQUID ASSETS / NET CURRENT DEBTS	-615,562
F, TOTAL ASSETS LESS CURRENT DEBTS	1,309,902
J, CAPITAL AND RESERVES	
I, CAPITAL (rd,22 + 23 + 24), WHICH:	1,029,600
- SUBSCRIBED CAPITAL PAID	1,029,600
III, REVALUATION RESERVES	1,201,716
IV, RESERVES	45,826
V, PROFIT OR LOSS REPORTED(Ă) BALANCE D	995,671
VI, PROFIT OR LOSS FINANCIAL YEAR BALANCE C	28,431
EQUITY OWNERHIP - TOTAL	1,309,902
CAPITALS - TOTAL	1,309,902
TOTAL ASSETS	2,317,325

INDICATOR	31,08,2010
Current debts	1,007,423
The net asset accounts	1,309,902
Number of shares	80,000
Action Value (accounting) - Lei / Action	16.37
Action value accounting – (EURO)	3.84
Nominal Value - (RON)	12.87
NominalValue - (EURO)	3.02

To determine the correct accounting net assets (ANCC) were used appropriate to there techniques balance nature elements reviewed. The analysis results are presented in annexes property assessed. Corrections have been applied to balance sheet values of the elements relates to the revaluation of fixed assets and debts*, as follows:

Table 3

Ajusted Net Asset Accounting

Denumirea elementului	Nr, Rd	Balance 31,08,2010	Corrections	Values corrected
A,NON CURRENT ASSETS				
II, TANGIBLE ASSETS	2	1,923,987	395,090	2,319,077
III, FINANCIAL ASSETS	3	1,477	0	1,477
NON CURRENT ASSETS - TOTAL (rd, 01 AT 03)	4	1,925,464	395,090	2,320,554
B,LIQUID ASSETS				
I, STOCKS	5	3,092	0	3,092
II, RECEIVABLE DEBS	6	357,152	0	357,152
IV,PETTY CASH AND BANK ACCOUNTS	8	31,617	0	31,617
LIQUID ASSETS - TOTAL (rd, 05 AT 08)	9	391,861	0	391,861
D, DEBTS: SUMELE CARE TREBUIE PLĂTITE ÎNTR-O PERIOADĂ DE PÂNĂ LA UN AN	11	1,007,423	-417,197	590,226
E, NET LIQUID ASSETS / NET CURRENT DEBTS (rd,09 + 10 - 11 - 19)	12	-615,562	417,197	-198,365
F, TOTAL ASSETS LESS CURRENT DEBTS (rd,04 + 12)	13	1,309,902	812,287	2,122,189
J, CAPITAL AND RESERVES				
I, CAPITAL (rd,22 + 23 + 24), WHICH::	21	1,029,600	0	1,029,600
- SUBSCRIBED CAPITAL PAID	22	1,029,600	0	1,029,600
III, REVALUATION RESERVES	26	1,201,716	395,090	1,596,806
IV, RESERVES	27	45,826	417,197	463,023
V, PROFIT OR LOSS REPORTED(Ă) BALANCE C (ct, 117)	31	0	0	0
BALANCE D (ct, 117)	32	995,671	0	995,671
VI, PROFIT OR LOSS FINANCIAL YEAR BALANCE C (ct, 121)	33	28,431	0	28,431
BALANCE D (ct, 121)	34	0	0	0
EQUITY OWNERHIP - TOTAL (rd, 21+25+26+27-28+29-30+31-32+33-34-35)	36	1,309,902	812,287	2,122,189
Public heritage	37	0	0	5,424,830

Denumirea elementului	Nr, Rd	Balance 31,08,2010	Corrections	Values corrected
CAPITALS- TOTAL (rd, 36+37)	38	1,309,902	812,287	7,547,019
TOTAL ASSETS		2,317,325	395,090	2,712,415
Current debts		1,007,423	-417,197	590,226
Long-term debts		0	0	0
The net asset accounts		1,309,902	812,287	2,122,189
Adjusted net asset		2,122,189		
Number of shares		80,000		
Action Value (accounting) - Lei / Action		16.37		
Action Value (corrected) - Lei / Action		26,5273625		
Round action Amount (corrected)		26.53		
Action Values (Nominal)		12.87		

Debt rating has been made taking into account:

- Control Minutes. Regional Customs Directorate concluded 6277/04.03.2004 Galati
- Decision of the Ministry of Finance - National Tax Administration Agency nr.263/31.08.2004
- No Control Order. 490/28.10.2004
- Process completed inspection report dated 15.12.2004 of the National Customs Authority - Regional Customs Directorate Galati Nr.11497/20.04.2005 Control
- Minutes of Regional Customs Directorate concluded Galati
- Background checks on DRAOV Galati document.

About SC COMBI GROUPS SA to own a building (apartment building - Basement + Ground Floor 5 levels) built from the ground surface of 283.22 sqm developed area of 1946.23 square meters estimated by evaluator from Annex 1 and garage built at the ground surface of 484.78 sqm.

The value of shares determined in accordance with the provisions of the International Valuation Standards and consisted in determining company value based method: adjusted net assets.

According to the NAM, following reconfiguration result of the contribution:

Table 4

Aport Configuration

Name	Share in the profits and losses (%)	After evalution (Ron)	After evalution (euro)
Shareholder 1	0.01	212.22	49.82
Shareholder 2	0.60	12,733.13	2,989.21
Shareholder 3	0.13	2,652.74	622.75
Shareholder 4	0.13	2,652.74	622.75
Shareholder 5	0.13	2,652.74	622.75
Shareholder 6	98.80	2,096,616.62	492,198.19
Shareholder 7	0.04	848.88	199.28
Shareholder 8	0.03	636.66	149.46
Shareholder 9	0.06	1,273.31	298.92
Shareholder 10	0.03	636.66	149.46
Shareholder 11	0.03	636.66	149.46
Shareholder 12	0.03	636.66	149.46
TOTAL	100.00	2,122,189.00	498,201.52

7. Conclusions

Evaluation of intangible assets is in accordance with International Valuation Standard - GN 4. Intangible assets include all assets that have no physical form, but which contribute, directly or indirectly, to obtain a business profit. The intangible assets are classified as known trademarks, patents, know-how, contracts, research projects - development, software and goodwill. In practice applies three approaches: the cost comparison and income.

Evaluation of intangible assets is infrequent in Romania thanks to a very poor casuistry. He saw that the crisis reduced the value of companies (Will bad) while economic growth increases the value of companies (Good Will).

Through effective leadership of a company one can use the intangible assets valuation method to increase the liquidity of the company, by not paying income tax.

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UNEMPLOYMENT IN ROMANIA AS "INCOME SOURCE" FOR MOST OF THE POPULATION DURING CRISIS

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Abstract. *Unemployment appears to be an imbalance in the national labor market, as a meeting between global supply and demand works. Unemployment is influenced by demographic, socio-economic and cultural features that determine its developments in time.*

Knowing them is important in establishing the balance between demand and labor market supply. This paper aims to conduct an analysis of features of unemployment in Romania during the crisis.

Keywords: unemployment; wage Minin; inflation; crisis.

JEL Codes: D5.
REL Code: 12I

1. Introduction

Unemployment is today one of the less acceptable phenomena that affect the economies of all nations.

Unemployment notion comes from the word "chomage" in French, in turn borrowed from Greek "cauma" meaning "high heat" due to interruption of any activity. Originally the concept of unemployment be stopping work due to high temperatures. Unemployment can be characterized as a negative state of the economy that affects a part of the active population by the failure of jobs available. Unemployed persons are all those able to work but can not find work and can be hired, in part or in all only at certain times of economic development. They represent a surplus labor force, compared with the number, the employees, and the conditions of return imposed by the market economy.

Unemployment became a problem, with industrial development, starting with the second half of the eighteenth century, in times of recession when industrial enterprises diminished their production and, therefore, issued a significant number of workers who became unemployed.

2. Unemployment. Features

Unemployment appears to result solely of labor supply; demand is not taken into account. Only in matching supply and demand of jobs allow more accurate assessment of the situation on the labor market, whether or not unemployment. An increase in supply determines decreasing in demand due to deterioration in the employment situation. Unemployment, if not at the present time there appears, and if there are increases. Conversely, increasing demand and decreasing labor supply translate into a decrease in unemployment.

According to "International Labor Office[(1)] any person who is unemployed has more than 15 years and simultaneously satisfies the following conditions:

- Capable of work;
- No job;
- Is available for employment;
- Job searching.

In Romania, Law No. 1/1991, republished with amendments by Law 86/1992(2), states that are considered unemployed able-bodied people that can not be employed because of lack of proper training to their seats, although there are no specifications in law show that age is over 16 years.

Unemployment can be considered an economic phenomenon, located at the crossroads of the social policies, with negative implications on the living conditions and living standards of the population. Market turmoil and the economy, especially the major structural change in transition economies, tend to be accompanied by any responsible government to mitigate the negative effects that accompany the transition on individuals through appropriate social policy measures.

For our society, which is on the path of transition towards a market economy it is essential to identify those areas of social life may become an object of social policy. In this respect, the unemployed as people without a job but are seeking and available for work is one of the social categories most affected by recent economic changes and is of great interest to analyze this segment of the population. For social policy measures have the desired effect, their focus is required on that segment of the population that needs support, in other words as more rigorous identification of vulnerable social groups.

In official statistics, the definition of unemployment is dealt with more rigorously to ensure the possibility to determine the relative and absolute indicators of unemployment statistics, and to ensure international comparability. In our country, the number of unemployed is determined and made public in two ways:

a) registered unemployed;

b) ILO unemployed, i.e. respecting the criteria of the International Labor Organization.

Registered unemployed are persons who said that in the reference period were entered in the labor force and unemployment offices, whether or not they receive support allowance, unemployment or other forms of social protection. The institution publishes such data is the Ministry of Labor and Social Protection.

ILO Unemployed are persons aged 15 and over who during the reference period satisfy the following conditions:

- Had no job and not doing business in order to achieve revenue
- Are looking for a job, using the last four weeks to find different ways: registration at the office of employment and unemployment or private agencies for placement, steps to start a business on their own advertisements or responses to ads, calls from relatives, friends, trade unions etc.
- Are available to start work within the next 15 days, if they would immediately find a job;
- The mere registration offices of Employment and Unemployment is not sufficient for an unemployed person must have the quality, as it is accepted by the international statistics.

3. Average income of people in Romania

For almost a year and a half, the global financial world, the global economy in general, has been struggling in the worst fall in the clutches. Unable to predict with some certainty the evolution of things, analysts have highlighted two major moments of crisis. The first was the instability generated by high-risk mortgages. The second point is the awareness by the rulers of this world need to revise the rules in force in their markets and to strengthen surveillance measures.

The real economic crisis hit Romania in 2009 after ongoing contracts signed in the good old days will end at a seminar organized by the ministry.

Signs of economic crisis grow from one day to another. Unions announce a disaster: over one million unemployed in 2009-2010. If it were so, the Romanian state costs will be very big. The syndicates pull alarms in Romania, saying that the unemployment rate will greatly increase early next year, and our economy is in grave danger.

If the gloomy forecasts will come true, a million unemployed would cost the state budget at least 405 million lei per month. Within a year the state budget should allocate 1.4 billion just to fund unemployment benefits. Minimum unemployment benefit is 450 lei, or 75% of the gross minimum wage of 600 lei. At this minimum percentage are added 3, 5, 7 or 10%, depending on the average length of contributions. Unemployment benefits are granted for periods of 6, 9 or 12 months, all depending on length of employment. Those who have paid only 12 months continuous contributions in the last 24 months, receiving unemployment for the minimum period of 6 months. Those who have more than three years of service, nine months receiving unemployment benefits, and those who have worked for over 10 years, receiving unemployment for the period up to one year.

Minister of Labor estimated that the number who could enter into unemployment because of economic crisis would number around 17,000, which puts pressure on social insurance system.

Romania ranks last in the European Union which has total revenues as a percentage of GDP budget.

With a share of 32.1% of GDP, Romanian budget has less money available to the budgets of European countries, EU average is 42.2%. The richest countries Sweden leads with 55.7% of GDP, followed by Denmark (55.4%) and Finland (53.2%).

The conclusion is that we are poor not only because of the crisis, but because we have problems in economic structure, because we have the lowest percentage of collection of taxes in the EU's largest economy, etc. level. We are poor because of social spending bill that comes every month to finance is huge compared to income.

Priorities in the distribution and redistribution of income will be moved on families with children and encouraging young people entering the labor market and labor market remain unemployed and those at around the age of retirement at the same time will ensure minimum income for elderly without pension and other categories that do not have salary or pension income.

Wage inequality in Romania are not determined by gender but by the nature of the employer and employee age. Average earnings of publicly owned units were approximately 50% higher than those of privately-owned units, while those in RAs were approximately 40% higher than those of commercial societies it. There are glaring inequities, unimaginable in a one thousand baized economy on competitiveness. The Romanian economy is given seniority credit (which does not necessarily mean efficiency) and employing the state (where one lives from the taxes collected especially from those who are at risk from the private sector). Young people who have major needs at the beginning of life: buying a house and basic necessities, a family, raising children earn 2.4 times less than their parents' generation, who have now molded ¬ lifetime or have no dependent children.

A major problem in Romania is the correlation of primary income (from wages, profits, etc.) For taxes/social security contributions and income from trans employment Social transfers based on these taxes and contributions (pensions, unemployment benefits, guaranteed minimum income, allowance disability allowances, etc.).

The methods used to achieve the average income tax evasion because of a family in Romania:

- registering full income;
- social security contributions and health related to salaries paid and not shown;.
- underground work.

Tax evasion is the theft by any means in whole or in part from taxes, fees and other amounts owed to the state budget, local budgets, state social insurance budget and special extra-budgetary funds by individuals.

Among the violations committed by the subjects prevailed the one made by chargeable and taxable animated by the desire to pay as little taxes and state taxes due, but to avoid setting, checking and tax prosecution.

In Romania material deprivation are reported in most of the population, but more pronounced in certain segments, including: families with many children employed, unemployed families and some families of retirees.

4. Causes of unemployment

Many people consider unemployment a negative short term to be avoided. There is a strong feeling of compassion for those who are in this situation, but each recognizes that there are also cases where happy people are inactive in the labor market because they choose it.

The value that each employee assigned a capacity for work is a result of affective processes, being influenced by previous experiences and reporting on working conditions of other individuals, but also the material resources available.

On the labor market, as the salary for a man is willing to work is lower, so the chances to find a job. It is a situation identical to any other markets; a supplier will be able to sell their product as they reduce the price.

A person who is looking for a job, but fails to find an employer to pay an acceptable price and prefer to wait, is unemployed voluntarily, in a free labor market with perfect competition, unemployment is always voluntary.

The increase in real wages is the best indicator of economic development and wellbeing, but it must be the result of increased demand (jobs) in employment, capital investment due. A newly established company creates new jobs and attract employees will have to offer them higher salaries than other entrepreneurs, and old firms must increase wages and improve working conditions for employees to keep working with.

High wages and good jobs are the result of a selection process as a result of competition between employers to attract employees (fair price mechanism of supply and demand in the labor market).

5. The main barrier to the labor market: minimum wage

But experience shows that there are people willing to work for lower wages, but can not find jobs and can not engage. A rule of the economy shows that the demand (number of jobs) increases as the price falls, so in this job there, but demand and supply can not meet because of barriers.

It is involuntary unemployment; involuntary unemployed people are more vulnerable than those who accept a lower salary. Always a man in search of a job, for which employment is a top option position prior to any other possible variants, that salary is the highest that can be achieved through negotiation at the time.

Government proposes another mechanism, administered prices, which the State imposes a limit price higher or lower, the latter is synonymous with the minimum wage. What are the consequences for employees and employers have such a measure? Depends on the situation:

1) minimum wage is low and is below the lowest bid price (the lowest salary for a man is willing to commit). This is the best situation because it has no effect.

2) has the effect of rising inflation. Imposed minimum wage increases, therefore all employers in that economy to avoid bankruptcy, will try to increase selling prices of products

they carry. Given that money is constant, rising prices can be achieved only by reducing the total quantity of goods sold.

The overwhelming majority of consumers (which is made up of employees that increase their pay as a result of higher minimum wage), they have to pay more than having the same resources. The law of marginal utility tells us that they will buy food, but will not have the resources to purchase goods and services margins (e.g. automobile, housing, tourism).

Companies that make these goods will become bankrupt and their employees will be unemployed. This situation usually occurs within a closed economy, but there are plenty of cases where the minimum wage in one country may lead to increased unemployment in other countries. For example, increasing the minimum wage in industrialized countries may result in increased unemployment or reduction of wages in a country with a highly developed tourism (many people in industrialized country having not resources to spend holidays in the second country). This form of inflation has the effect of increasing people's poverty by reducing access to goods and indirectly creates involuntary unemployment.

3) Directly generates involuntary unemployment. Imposed minimum wage increase, but employers can not raise prices because they are in direct competition with foreign companies.

The effect will be to reduce the effectiveness of their work will go bankrupt and many employees will no longer have jobs and those remaining become unsafe. In this situation we have the effect of the emergence of involuntary unemployment, in proportion to the administered price increases (the minimum wage required), although in many cases this effect does not appear immediately after the entry into force of the law, but after an adjustment period, for example, many employers accept to continue the work until completion of existing contracts with their customers, though financial loss;

Tactics of most governments is to avoid increasing unemployment minimum wage trying to match imposed economic growth. Basically, the method still does not change the unemployment rate substantially, but in so way a serious form of involuntary unemployment appears while even in periods of economic boom or is the number of unemployed chronic unemployment.

There is a fourth case, which deserves a separate analysis because it is the only mechanism that governments made publicly: increased salaries resulting from the administered price mechanism in the labor market is achieved by reducing the profits of employers. It is a variant that occurs only in the short term because repeated reduction of profit (by increasing the regular minimum wage required) leads entrepreneurs to close factories to move their capital in other countries, and long-term fall in the situation third, generating involuntary unemployment.

Also, not only increasing the minimum wage creates unemployment, the same effect occurs as a result of maintaining a minimum wage at the same level as in the past although the market equilibrium decreases in times of crisis. Increasing the amount of social security contributions has the same effect as an increase imposed by law, the full salary. What options exist to eliminate involuntary unemployment would create? Is only a single solution: eliminate the minimum wage required!

Economic theory shows and other types of unemployment: structural, seasonal, but there are particular forms of voluntary redundancy in a free market. A special category of unemployment indicates that short-term market imperfection is frictional unemployment. This is the time since termination of employment and until such time as identifying a person willing to employ him.

What influences this time finding a new job there is lack of information about jobs available at any time. Solution to reduce this time limit until an undistinguishable limit is provided on the progress of information technology that creates the possibility of accessing real time information on supply and demand in the labor market.

6. Conclusions

Case of chronicity of unemployment in Romania had a very precise final target, namely, to draw out the main possibilities and means of boosting future and the foundation and development of policy recommendations on employment growth and the prevention and combating unemployment. The economy is in constant motion, and degree of entropy is today greater than ever. Unfold again and again and restore the balance, over and over society and its citizens must adapt to these new realities.

Notes

(1) International Labour Office.

(2) Law No. 1 of 7 January 1991 on social protection of unemployed persons and their professional reintegration.

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DEBT SUSTAINABILITY FORECASTING. CASE OF ROMANIA

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Abstract. *Sustainability can also be assessed in other terms but the size of the accumulated stock of public debt. Even with an indebtedness degree of 20%, budget and fiscal policies may be unsustainable if, for example, that State is unable to pay its obligations arising from the contracted public loans, so if it is not creditworthy. Public debt's sustainability can be represented as a relationship between the budgetary balance (surplus or deficit and public debt, for any annual GDP growth rate. There are two versions of the mentioned relationship, depending on considering the consolidated or primary budgetary surplus / deficit. In order to achieve an empirical analysis of public debt sustainable in Romania, in this paper we consider a data set of quarterly time horizons for the period 2000-2008 for the share of public debt to GDP.*

Keywords: public debt; sustainability; interest rate; fiscal policy; budget policy.

JEL Codes: H6, H8, E4, H3, H2.
REL Codes: 13B, 13Z, 8Z, 8K, 13A.

1. Introduction

Metaphorically speaking, the sustainability of fiscal and budget policies can be seen as a "good management" of resources (Blanchard, Chouraqui, Hageman and Sartor). The authors mentioned above defined a sustainable fiscal policy (Chourakqui et al., 1990, pp 9-11) as the policy that allows short-term debt to GDP ratio back to baseline levels after some excessive variation, or, in other words, a fiscal policy is sustainable after a certain accumulation of public debt in the past, if the government is able to achieve a primary surplus in the future.

2. Theoretical background

Blanchard (1990, pp. 3-18) defines sustainable fiscal and budgetary policies as those policies which do not lead to the explosive growth of the indebtedness of state or from which no measures are taken to increase taxes, drastic reduction public spending, the monetization of budget deficit or public debt repudiation.

With this approach, we can interpret that an indebtedness degree of 30% may show the promotion of sustainable policies, while a high leverage of 90% is considered to be unsustainable.

Sustainability can also be assessed in other terms but the size of the accumulated stock of public debt. Even with an indebtedness degree of 20%, budget and fiscal policies may be unsustainable if, for example, that State is unable to pay its obligations arising from the contracted public loans, so if it is not creditworthy.

Zee (1987, pp. 1-30), Horne (1991) and Buiter (1997, pp. 7-10) have made improvements to Blanchard's approach, bringing together the concepts of sustainability and solvency. In this regard, it is considered that a State is solvent when the present value of the primary surplus is equal to the debt contracted, solvency being a necessary, but not sufficient condition for tax and budgetary policies to be sustainable. (Horne, 1991, p. 1)

Therefore, the sustainability of fiscal policies and budgetary means the possibility for public authorities to be able to play the same set of policies for an indefinite period (Horne, 1991, p. 1).

Returning to the distinction Luigi Pasinetti (1998) achieved between a level public debt and the change in relative size of public debt level ratio to GDP, and considering the situation when the high level of public debt is stable and decreases with time, leading to a surplus of primary deficit as a sustainable position, it is easy to observe that the benchmarks specified in the Additional Protocol of the Treaty of Maastricht is just one of the pairs of numbers that satisfy the condition of sustainability spending (Pasinetti, 1998, pp. 512-515).

Public debt's sustainability can be represented as a relationship between the budgetary balance (surplus or deficit and public debt, for any annual GDP growth rate. There are two versions of the mentioned relationship, depending on considering the consolidated or primary budgetary surplus/deficit (Dima et al., 2009, pp. 53-59).

3. Method and results

1. The arithmetics of public debt's sustainability

Literature approaching the issue of sustainability of fiscal and budgetary policies are based on the theoretical framework found in studies by Hamilton and Flavin (1986, pp. 808-819), Chouraqui, Hagemann and Sartor (1990, pp. 65), Blanchard (1990, pp. 13-14), Gramlich (1990, pp. 19-23), Horne (1991, p. 3) and Buiter (1995, p. 5) .

The arithmetics of sustainable fiscal and budgetary policies is based on the following budget constraint (Llorca et al., 2008, pp. 159-172):

$$G_t - T_t + r_t \times B_{t-1} = B_t - B_{t-1} \quad (1)$$

where G_t = primary government expenditures (budgetary expenditure excluding interest payments on public debt);

T_t = state revenues;

$(G_t - T_t)$ = primary budget deficit;

B_t = debt stock at end of period t;

r_t = interest rate on public debt.

Equation (1) suggests that without a monetary issue, the budget deficit (excluding interest payments on public debt) will be financed by new issuance of government securities. Dividing each term of equation (1) to GDP in nominal terms, we obtain the intertemporal budget constraint expression with values of macroeconomic variables divided to GDP:

$$b_t = (1+r_t)(1+\eta_t)^{-1} b_{t-1} + (g_t - \tau_t) \quad (2)$$

where $b_t = B_t/Y_t$ = public debt ratio to GDP (Yt);

$g_t = G_t/Y_t$ = share of primary expenditures in GDP;

$\tau_t = T_t/Y_t$ = State revenue share in GDP;

$\eta_t = (Y_t - Y_{t-1})/Y_{t-1}$ = Nominal GDP growth rate in (t-1) - t.

$(1+r_t)(1+\eta_t)^{-1} \approx 1 + r_t - \eta_t$, equation (2) becomes:

$$b_t = (1+r_t-\eta_t) b_{t-1} + (g_t - \tau_t) \quad (3)$$

We make the following notation: $\theta_t = r_t - \eta_t$. Equation (3) will take the following form:

$$b_t = (1+\theta_t) b_{t-1} + (g_t - \tau_t) \quad (4)$$

Equation (4) is an ex-post identity at time t. To obtain the intertemporal budget constraint, rewrite the previous equation (4) for the period (t +1) and get:

$$b_t = E_t\left[(1+\theta_{t+1})^{-1} b_{t+1} \right] - E_t\left[(1+\theta_{t+1})^{-1} (g_{t+1} - \tau_{t+1}) \right] \quad (5)$$

where b_t = public debt to GDP at time t;

E_t = expectations of public debt to GDP, the operator whose value depends on variables at time t.

For the fiscal policy to be sustainable in a given period, you must verify the equation (5), which, if we express the successive intervals, as follows: t+1, t+ 2 ,..., t + s and solve it, we get the budget constraint for the period s, respectively:

$$b_t = E_t\left[\sum_{s=1}^{\infty} \prod_{i=1}^{s} (1+\theta_{t+1})^{-1} (\tau_{t+s} - g_{t+s}) \right] + \lim_{s\to\infty} E_t\left[\prod_{i=1}^{s} (1+\theta_{t+i})^{-1} b_{t+s} \right] \quad (6)$$

: $\left[\prod_{i=1}^{s} (1+\theta_{t+i})^{-1} \right]$ = discount factor variable over time.

A necessary and sufficient condition for a sustainable fiscal policy (a) is the expected value of the share of public debt / GDP ratio tend to 0, with the condition $s\to\infty$. This condition can be expressed as:

$$\lim_{s\to\infty} E_t\left[\prod_{i=1}^{s} (1+\theta_{t+1})^{-1} b_{t+s} \right] = 0 \quad (7)$$

Equation (7) excludes a Ponzi-type scheme, meaning that payment of interest on existing debt stock is not achieved at the expense of contracting a new stock of public debt. In other words, equation (7) implies that the government authorities of a state does not have the option to have primary deficits that are perpetuated over time.

If the transversality condition in equation (7) is met, then the share of public debt to GDP is surpassed by the amount of current and projected surpluses, also expressed as a percentage of GDP, intertemporal budget constraint in present values becomes:

$$b_t = E_t\left[\sum_{s=0}^{\infty} \prod_{i=1}^{s} (1+\theta_{t+1})^{-1} (\tau_{t+s} - g_{t+s}) \right] \quad (8)$$

To test equation (6), we assume that the interest rate adjusted the nominal growth rate of GDP, $\theta_{t,,}$ is stationary, Through mathematical calculations (Hakkio etal, 1991: p. 429-445) and considering the costs and revenues as two non-stochastic variables, equation (8) can be rewritten as follows:

$$g_t^* - \tau_t = \sum_{s=0}^{\infty} (1+\theta)^{-s+1} (\Delta\Delta_{+s} - \Delta g_{t+s}) \quad (9),$$

where $g_t^* = g_t + \theta \times b_{t-1}$, g_t^* = total budgetary expenditure, expenditure with materials, goods and services, transfers and debt interest, and Δ is the first difference of the variable.

The right part of equation (9) is stationary of order one (I (a)), implying that the left side of the equation should be stationary, to be observed intertemporal budget constraint. Therefore, variables g_t^* and τ_t should be tested for stationarity. If variables g_t^* and τ_t are stationary of order one (nonstationary in level), they should be cointegrated so the left side of the equation (9) is stationary. Therefore, debt sustainability testing involves testing the cointegration of them, as well as their non-stationarity (I (a)). Regression test takes the following form:

$$\tau_t = \alpha + \beta \times g_t^* + u_t \quad (10)$$

Basically, the two variables, g_t^* and τ_t, are stationary of order one, the null hy-pothesis is that those two variables are cointegrated and the coefficient independent variable $\beta=1$. If the null hypothesis is confirmed, then public debt is sustainable. Fiscal policy is considered to be sustainable (regarding the deficit and public debt) if the present value of the future budget surpluses equals the current stock of public debt and current debt stock value tends to infinity to zero (Talpoş et al., 2008, pp. 233-243).

Quintos (1995, pp. 409-417) also considers that the existence of a cointegrating relationship between expenditure and revenue, with a cointegrating coefficient close to 1, taking into account the fact that both series are non-stationary and have the same order of integration is a necessary and sufficient condition for the validity of intertemporal budget constraint, while the cointegration relationship with a coefficient $0<\beta<1$ as a result is only a sufficient condition.

An alternate method involves testing the validity of the intertemporal budget constraint cointegrating relationship between debt and primary deficit, given that both series are non-stationary level. MacDonald (1996, pp. 7-11) starts from an alternative analysis of the above equation (8), respectively:

$$b_{i,t-1} = \sum_{i=1}^{N} \sum_{\eta=t+1}^{\infty} \left[\frac{1}{(1+r_i^*)^{\eta-t}} S_{i,\eta-1}^{(p)} \right] \quad (11),$$

$S^{(p)}_{i,t} = \tau_{i,t} - g_{i,t}$ = primary budget surplus

r_i^* = adjusted interest rate on public debt = $((1+r_{i,t})/(1+\eta_{i,t})-1)$

Dividing both terms of the relation (11) at $r_i^{-1}S_{i,t-1}^{(p)}$,we get:

$$b_{i,t-1} - \frac{1}{r_i^*} S_{i,t-1}^{(p)} = \sum_{i=1}^{N} \sum_{\eta=t+1}^{\infty} \left[\frac{1}{(1+r_i^*)^{\eta-t}} (S_{i,\eta-1}^{(p)} - S_{i,\eta-2}^{(p)}) \right] \quad (12)$$

It is considered that the term $(S_{i,\eta-1}^{(p)} - S_{i,\eta-2}^{(p)})$ resuls from the approximation value of r_i^{-1} with the sum of the primary surplus amount, therefore $\Delta S_{i,\eta-1}^{(p)}$. Equation (12) implies the equivalence between the stationarity testing of $\Delta S_{i,\eta-1}^{(p)}$ with testing the stationarity of the linear combination $(r_i^* b_{i,t-1} - S_{i,t-1}^{(p)})$. Starting from equation (12) and using the definition of Engle-Granger (1987, pp. 251-276), cointegration implies a stationarity parameter r_i^* a level that ensures the following linear combination (I(0)).

$$S_{i,t}^{(p)} - r_i^* \times b_{i,t} = \varepsilon_{i,t} \quad (13)$$

Follows the cointegration between public debt and primary deficit. Equilibrium relationship is given by:

$$S_{i,t}^{(p)} = r_i^* \times b_{i,t} \quad (14)$$

the vector $\beta_i` = (1, -r_i^*)$ is the cointegrating vector.

Equivalently, following the Granger representation theorem (Engle et al., 1987, p. 255), the cointegration relationship between the primary budget deficit and public debt can be expressed as an error correction representation of the type:

$$\Delta S_{i,t}^{(p)} = \alpha_i + \lambda_i (S_{i,t}^{(p)} - r_i^* \times b_{i,t-1}) + \delta_{i,S^{(p)}} \times \Delta S_{i,t-1}^{(p)} + \delta_{i,b} \times \Delta b_{i,t-1} + u_{i,t} \quad (15),$$

where λ_i = adjustment coefficient;

$u_{i,t}$ = „white noise".

This model examines the long term changes in primary budget deficit and public debt and the rate of error correction in the model, $(S_{i,t}^{(p)} - r_i^* \times b_{i,t})$. A significant statistical value of λ_i supports the hypothesis of cointegration between the primary budget deficit and public debt and shows that the error correction model is valid. This model demonstrates that, although the dynamics of the two indicators may be short-term divergent, the fiscal variables will adjust their deviation when their deviation differs from the equilibrium point, so, on long-term,

budget deficit and public debt will have a similar trend, if there are restrictions on large movements of the variables by intertemporal budget constraint.

Therefore, we conclude that fiscal policy satisfies intertemporal budget constraint (resulting sustainability) if primary series of deficit and public debt are cointegrated.

2. Public debt sustainability forecasting in Romania

Analysis of Romania's indebtedness, provides not enough relevant information to say if the Romanian authorities promote a quality management of public debt. Therefore, we consider necessary the approach based on the analysis of indebtedness in Romania in terms of public debt (Prohl et al., 2006, pp. 5-8).

To test the normal distribution of the series of public debt to GDP in Romania in the period: first quarter 2000 – quarter IV 2008, we present the histogram distribution, average, median, minimum and maximum values, standard deviation, coefficient of asymmetry, the series kurtotica and the test Jarque-Bera:

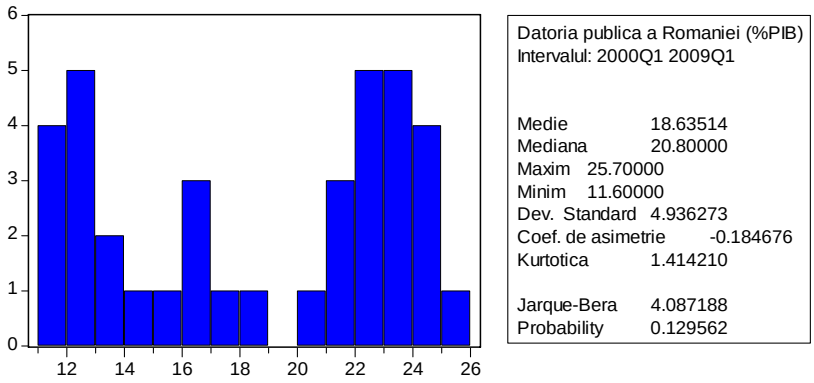

Figure 1. *Distribution of public debt to GDP under the Jarque-Bera test*

For a normal distribution of a series, the asymmetry coefficient values are close to 0, which means that it is symmetrical and the kurtotica has a value approximately equal to 3. If this latter indicator records a higher value than 3, is called leptokurtotica distribution and a lower value of 3 indicates a platikurtotica distribution.

In the case of Romania, the public debt series (% GDP), the coefficient of asymmetry (skewness) value records the value of -0.18, indicating a symmetrical distribution and the kurtotica value (kurtosis) of 1.41 shows that the distribution is platikurtotica, therefore the probability of an event is inferior to the probability of occurrence of the event involved by a normal distribution.

Another way of testing the normality of distribution is using the Quantile test:

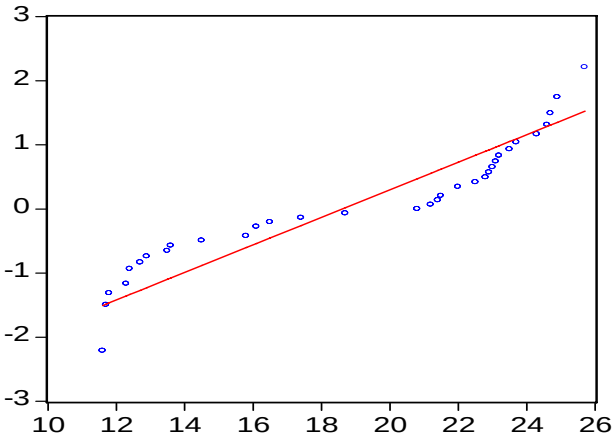

Figure 2. *Distribution of public debt to GDP under the test Quantile*

By this methodology are plotted the quantile theoretical distribution (normal, represented with solid line) versus quantile distribution of public debt (% GDP, represented by dots), again emphasizing a positive asymmetry distribution without major deviations from the normal distribution.

Based on equation $b_t = (1+\theta_t)b_{t-1} + (g_t - \tau_t)$ we estimate the sustainable level of debt in Romania within first quarter 2000 - quarter IV 2008:

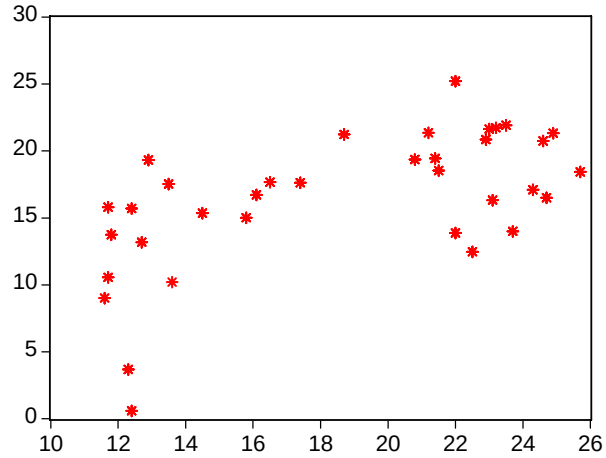

Figure 3. *Public debt (% GDP) versus sustainable public debt (% GDP) in Romania (first quarter 2000 - quarter IV 2008)*

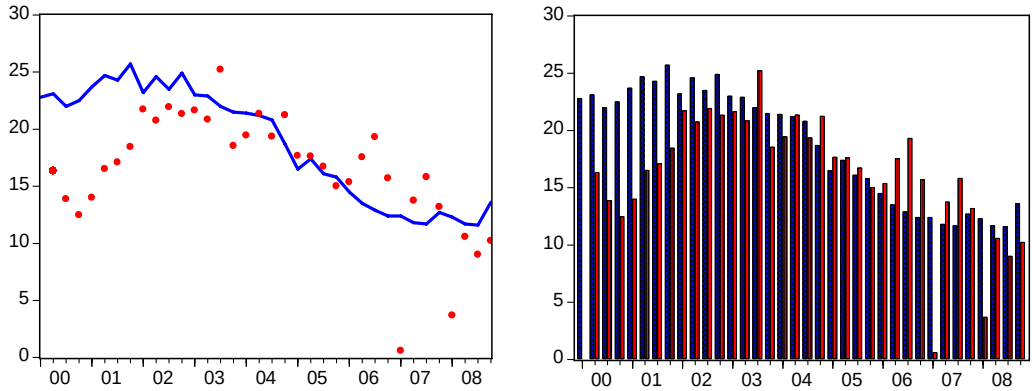

Figure 4. *Comparative Dynamics of Public Debt (% GDP) and sustainable public debt (% GDP) in Romania (first quarter 2000 - quarter IV 2008)*

4. Conclusions

Given that the real interest rates experienced largely negative values (positive values since the last quarter of 2006), Romania was indebted generally more than the estimated sustainable level of debt allowed (Figure 4.) even when the growth rate of GDP recorded negative values. However, estimating the sustainable level of debt while mentioned variables have negative values can lead to distorted results. Therefore, we recommend estimating the sustainable level of debt only in cases where the real interest rate on public debt and GDP growth rate recorded positive values (Abiad, 2005, pp. 34-38). This is valid for Romania only after year 2004, when the charts indicate an approximation of the real contracted value of public debt by the estimated value.

Unfortunately, we can not fail to notice that public authorities, in Romania, present a lack of realism and they have a single goal, to ensure a balance in the short time, to reach the Maastricht convergence criteria and rigid observance of the old Stability and Growth Pact, so, such prerequisites for sustainable development and sustainable by promoting consistent policies tax revenue and expenditure, were ignored.

Notes

(1) In the economic theory, there is no consensus regarding the condition of sustainability of fiscal policy. Moreover, Balassone F. and Franco D. (2000), Assessing fiscal sustainability: a review of Methods with a view to EMU, Banca d'Italia. Essays Fiscal sustainability. Bank of Italy Workshop, January) believe that there are serious difficulties in the definition of fiscal sustainability, analytical and operational.

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THE DYNAMICS OF ECONOMY AND EQUILIBRIUM GROWTH RATE QUANTIFICATION WITH CONSTANT STOCK OF BOUNDS

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Abstract. *Equilibrium growth rate stated by us is based on equilibrium evolution of economy IS-LM-SRAS, where the equations IS and LM are liniar specificated in real GDP, nominal interest rate and real wealth, and the SRAS curve is also linear, infered from linear Phillips curve.*

The evolution of the economy is determined from two dynamic continuous time equations: the dynamics of expected inflation rate, specified as adaptive mechanism with respect to current inflation rate, and the wealth dynamics, the last arising from the policy of budget deficit finance. As a consequence, the dynamics of economy depends on the policies of the government and the Central Bank.

The paper comprises three parts: the dynamic model deduction, long run and short run dynamics of the economy, money finance debt, when $b_t = \bar{b}$ *policy is applied, deduction of the equilibrium growth rate for this policy.*

Keywords: IS-LM-SRAS equilibrium; real wealth and expected inflation dynamics; monetary policy; Riccati equation; economic equilibrium growth rate.

JEL Codes: E52, E 59, C61, C62.

1. Introduction

We ground a relation for the economis growth quantification as a alternative to the well known models of the traditional theory of the economic growth: Solow model, Ramsey-Cass-Koompmans model, Solow-Swan-Sidrauski model, Lucas model (two sector endogenous growth model), models which syntheesis could be seen in Andrei, Imperato, Oprescu (2007), chapter 1.

Equilibrium growth rate stated by us is based on equilibrium evolution of economy IS-LM-SRAS, where the equations IS and LM are liniar specificated in real GDP, nominal interest rate and real wealth, and the SRAS curve is also linear, infered from linear Phillips curve.

The evolution of the economy is determined from two dynamic continuous time equations: the dynamics of expected inflation rate, specified as adaptive mechanism with respect to current inflation rate, and the wealth dynamics, the last arising from the policy of budget deficit finance. As a consequence, the dynamics of economy depends on the policies of the government and the Central Bank.

From the three monetary policies applied in different countries, we examine here the evolution of the economy when it is applied the policy of money financing deficit, real stock of bounds being held constant, $\left(b_t = \bar{b}\right)$, the results of application of the other two politics, following to be presented in another paper.

We admonish to the fact that, apparently, the model is dynamic linear. In fact, appears the nonlinearities both in the wealth, inflation and real monetary stock dynamics and in the

equilibrium values through government expenditures multiplier $\hat{k}_g$, monetary multiplier $\hat{k}_m$, and real wealth multiplier $\hat{k}_a$.

As a consequence, the state path and of the final variables can't be analytically determined but only numerically, through simulation. The results obtained by us are illustrative.

The paper comprises three parts:

2. The dynamic model deduction;
3. Long run and short run dynamics of the economy when $b_t = \bar{b}$ policy is applied;
4. Deduction of the equilibrium growth rate for this policy.

2. Dynamic model

The model contains three equilibrium equations in real variables:

1. IS equilibrium on goods market,
2. LM equilibrium on monetary market,
- Phillips curve,

and two dynamic equations:

– expected inflation dynamics (π_t^e)

– real wealth dynamics $(\dot{a}_t = \dot{m}_t + \dot{b}_t)$

2.1. IS-LM equilibrium

a) IS equilibrium

We specify the agregate function of real consumption demand (d_t):

$$d_t = c_t + i_t^R + g_t \quad (1)$$

where

$$c_t = c(y_t^d, a_t), \text{ cu } c_y' \in (0,1),\ c_a' \in (0,1) \quad (1.a)$$

is the real demand of private consumption,

$$i_t^R = i(y_t, i_t, \pi_t^e), \text{ cu } i_y' \in (0,1),\ i_i' < 0,\ i_\pi' > 0 \quad (1.b)$$

is the real demand for investments,

g_t is real government demand (for public consumption and investments $g_t = c_t^g + i_t^g$), considered as exogenous, $a_t = m_t + b_t -$ is the real wealth, $a_t = \frac{A_t}{P_t}$, which consists in real stok of money $m_t = \frac{M_t}{P_t}$ and real stok of bonds, $b_t = \frac{B_t}{P_t}$, where P_t is IPC (price index), y_t, y_t^d is real GDP and the disposal GDP is,

$$y_t^d = y_t - t \times x_t + i_t \times b_t + \theta_t - \pi_t^e \times a_t \quad (1.c)$$

We consider the real proportional taxes:

$$t \times x_t = \tau \times y_t + \underline{t},$$

with the mean tax $\tau \in (0,1)$ and the autonomus tax $\underline{t}$. So, real GDP is:

$$y_t^d = (1-\tau) \times y_t + i_t \times b_t - \pi_b^e \times a_t + (\theta_t - \underline{t}) \quad (1'c)$$

and shows that is composed by real GDP after tax, bonds' income, nominal interest rate beeing

i_t and is reduced by the walth erosion throwgh inflation.

We consider, for simplicity, that real transfers θ_t equals the autonomus taxes $\underline{t}$ but that assumption could be eliminated for purpose of social politics effects of transfers study.

Consider that the real consumption demand function (1.a) is linear:

$$c_t = c_y^{'} \times y_t^d + c_a^{'} \times a_t + \underline{c} \qquad (1^{'}a)$$

where $\underline{c}$ is the real autonomus consumption. Consider also real demad for investments as being linear:

$$i_t^R = i_y^{'} \times y_t + i_r^{'} \times (i_t - \pi_t^e) + \underline{i^R} \qquad (1^{'}.b)$$

where $\underline{i^R}$ is the autonomus investment and

$$r_t = i_t - \pi_t^e \qquad (1.c)$$

is the real interest rate, with $i_r^{'} < 0$ the sensitivity of investments to real interest rate.

Using the substitutions and taking account by equilibrium condition on the products market

$$d_t = y_t \qquad (1^{'})$$

we obtain the IS curve (IS) in coordinates (y_t, i_t) of real GDP and nominal interest rate:

$$(IS): (1-(1-\tau)c_y^{'} - i_y^{'})y_t - (i_r^{'} + c_y^{'} \times b_t)i_t = (c_a^{'} - c_y^{'}\pi_t^e) \times a_t + g_t - i_r^{'} \times \pi_t^e + d_{IS}^a$$

$(1^{''})$

where:

$d_{IS}^a = \underline{c} + \underline{i^R}$

is the aggregate private outonomus demand in the products' market.

(IS): is negative sloping

$$\frac{dy_t}{di_t}\Big|_{IS} = \frac{i_r^{'} + c_y^{'} \times b_t}{1-(1-\tau)c_y^{'} - i_y^{'}} < 0$$

$(1^{'}.f)$

b) LM equilibrium

Is specify by the function of real demand of money:

$$L = L(y_t, i_t, a_t), L_y^{'} > 0,\ L_i^{'} < 0,\ L_a^{'} > 0 \qquad (1.\ g)$$

LM equilibrium is:

$$L(y_t, i_t, a_t) = \frac{M_t}{P_t} \qquad (1.h)$$

We will consider that the function of real demand of money is linear:

$$(LM): m_y^{'} \times y_t + m_i^{'} \times i_t + m_a^{'} \times a_t + \underline{m} = m_t$$

(1'.h)

where we noted:

$$m_y^{'} = L_y^{'} > 0,\ \ m_i^{'} = L_i^{'} < 0,\ \ m_a^{'} = L_a^{'} > 0 \qquad (1'.g)$$

The sensitivities of the demand of money with respect to the determinants factors (y_t, i_t, a_t) and $\underline{m}$ is the real autonomus demand of money,

$m_t = \frac{M_t}{P_t}$ - real supply of money, exogenous variable of monetary policy.

(LM) is positive sloping: $\frac{dy_t}{di_t}\Big|LM = -\frac{m_y^{'}}{m_i^{'}} > 0$.

c) IS-LM simultaneous equilibrium

The IS-LM equilibrium is specified by (y_t, i_t) pear and is obtained from $(1^{"})$ and $(1^{'}.h)$, applying Cramer method:

$$y_t = \frac{\Delta_1}{\Delta},\ \tilde{i}_t = \frac{\Delta_2}{\Delta} \tag{1.h}$$

Certainly $\Delta \neq 0$ and, because IS is deacreasing and este LM is increasing, there exists a unique equilibrium. We note:

$$\hat{k} = \frac{m_i^{'}}{\Delta} = \left[1-(1-\tau)c_y^{'} - i_y^{'} + \frac{m_y^{'}}{m_i^{'}}(i_r^{'} + c_y^{'} \times b_t)\right]^{-1} \tag{1.i}$$

the government real expenditures multiplyer $g_t = G_t \,/\, P_t$ and, similarly

$$\hat{k}_m = \frac{1}{m_i^{'}}(i_r^{'} + c_y^{'} \times b_t) \times \hat{k}_g \tag{$1^{'}.i$}$$

$$\hat{k}_a = (c_a^{'} - c_y^{'} \times \pi_t^e)\hat{k}_g - m_a^{'} \times \hat{k}_m \tag{$1^{"}.i$}$$

the multiplyers of real supply of money (m_t) and of real wealth (a_t).

The equilibrium real GDP obtained is:

$$\tilde{y}_t = \hat{k}_g \times g_t + \hat{k}_m \times m_t + \hat{k}_a \times a_t - \hat{k}_g \times i_r^{'} \times \pi_t^e + \hat{k}_g \times d_{ISLM}^a \tag{$1^{'}.h$}$$

Where:

$$d_{ISKM}^a = \underline{c} + \underline{i}^R - \hat{k}_m \times \underline{m} \tag{$1^{"}.h$}$$

is the autonomus demand of goods and money in the IS-LM equilibrium.

From LM equation, we obtain the equilibrium nominal interest rate:

$$\tilde{i}_t = -\frac{m_y^{'}}{m_i^{'}} \times \tilde{y}_t - \frac{m_a^{'}}{m_i^{'}} \times a_t + \frac{1}{m_i^{'}}(m_t - \underline{m}) \tag{$1^{'''}.h$}$$

In conclusion, IS-LM equilibrium is described by the equations $(1^{"}.h)$, $(1^{'''}.h)$ and the effects analyse of the determinant factors on real GDP, $\tilde{y}_t$ and on nominal interest rate $\tilde{i}_t$ is simply to show applying comparative statics and dynamics on the equations $(1^{"}.h)$, $(1^{'''}.h)$.

2.2. Phillips curve and SRAS equilibrium

We use the linear variant of Phillips curve:

$$\pi_t - \pi_t^e = b(u_t - u_N),\ b < 0 \tag{1.j}$$

where u_t is the actual rate of unemployment and u_N is the natural unemployment rate:

$$u_t = 1 - \frac{L_t}{\bar{L}}, \qquad u_N = 1 - \frac{L_N}{\bar{L}} \tag{1.k}$$

Here $\bar{L}$ is the disposal labor, L_t is the employed labor and L_N is the potential labor, corresponding to the natural unemployment.

Assume that the supply is represented by a unifactor linear production function:

$$y_t = A \times L_t \tag{$1^{'}.k$}$$

And we note $\bar{y}_t = A \times L_N$ - the potential output, we infer the equilibrium equation of the short run agregate supply (SRAS):

$$\pi_t = \pi_t^e + \chi(y_t - \bar{y}), \ \vartheta > 0 \qquad (1^{'}.j)$$

where $\chi = -\frac{b}{A\bar{L}} > 0$

Consequence: On the long run, when $\pi_t = \pi_t^e = \pi^*$ SRAS equilibrium becomes LRAS:

$$y_t = \bar{y} \qquad (1^{''}.j)$$

2.3. Short run dynamics of the economy

The dinamics of the Economy is described by the two state variables:

π_t^e and a_t whose evolution is given by:

$$\begin{cases} \dot{\pi}_t^e = \alpha(\pi_t - \pi_t^e), \quad \alpha > 0 & (1.l) \\ \dot{a}_t = g_t - \tau \times y_t + i_t \times b_t - \pi_t \times a & (1.m) \end{cases}$$

That evidence that the expected inflation is explained by an adaptive mechanism from the actual inflation, with the adjustment speed α, and the wealth dynamics $\dot{a}_t = \dot{m}_t + \dot{b}_t$ is given by the monetary policy for debt financing $DB_t = g_t - \tau \times y_t + i_t \times b_t$. The budgetary debt is constituted by the primary deficit $(g_t - \tau \times y_t)$ and the debt service (interests payment) for the government bonds (b_t). The current real wealth is eroded (a_t) is eroded by the current inflation, so is diminished with

$(-\pi_t \times a_t)$

In conclusion, the state of the economy is characterised by five endogenous variables: three of these being equilibrium variables (y_t, i_t, π_t) and two of these being dynamic equation (π_t^e, a_t). As $a_t = m_t + b_t$, depending on the macroeconomic policy used by Central Bank, one of the two variables, m_t - money issue, or b_t - bonds issue as endogenous variable, another one being exogenous, that is instrumental variable.

Also g_t is an instrumental variable used by government, besides the transfers policy which is not our present concern.

We observe that the expected inflation dynamics $\dot{\pi}_t^e$ could be evidenced with respect with the observed variable "Okun gap" , so the deviation of real GDP from potential GDP, $y_t - \bar{y}$:

$$\dot{\pi}_t^e = \alpha \times \gamma(y_t - \bar{y}) \qquad (1^{'}.l)$$

2.4. Usual monetary policies

We are recalling now the three monetary policies currently used:

1. Constant real stock of bonds $(b_t = \bar{b})$

The state policy in this case is:

m_t (money issue) whose dynamics is deduced from the equation (1.m), because $m_t = a_t - \bar{b}$ and $\dot{m}_t = \dot{a}_t$.

Consequence: The nominal stock of bonds is rising with the inflation rate:

$$\frac{\dot{B}_t}{B_t} = \pi_t \qquad (1.n)$$

2. Constant real stock of money ($m_t = \overline{m}$) the state variable being b_t, whose dynamic is infered from the wealth equation (1.m).

$$\frac{\dot{M}_t}{M_t} = \pi_t \qquad (1^{'}.n)$$

Indeed $\frac{M_t}{P_t} = \overline{m}$, taking the logarithms and diferentiating, we deduce $(1^{'}.n)$ where by definition the current inflation is the price rise rate $\pi_t = \frac{\dot{P}_t}{P_t}$.

3.Constant rate of money base:

$$\frac{\dot{M}_t}{M_t} = \mu \qquad (1^{''}.n).$$

Consequence : The real money stock has teh growth rate:

$$\frac{\dot{m}_t}{m_t} = \mu - \pi_t \qquad (1^{'''}.n)$$

Whatever policy is applied, the dyferential equations system $\left(\dot{a}_t, \dot{\pi}_t^e\right)$ which describes the dynamics of the economy is non-linear, what makes impossible to find an analythic solution.

The only possibility to evidence the trejectories of the variables: a_t, π_t^e and the equilibrium ones

y_t, i_t *and* π_t being the numerical one, using the specialised software.

2.5. Numerical data for Romania

The linearity hypotesis for the demand functions for consumption goods, for investments, for the money, linearity of Phillips curve, and the hypotesis of adaptive expectations make facile applying of the econometric methods for parameters estimation.

Taking $p_0 = 1$, we obtain the parameters presented in the Table 1 (T.1)

Table 1

(T_1)Parameters Initial values

$c_y^{'} = 0.8$	$i_y^{'} = 0.1$	$m_y^{'} = 0.25$	$a_0 = 100$
$c_a^{'} = 0.05$	$i_r^{'} = -110$	$m_a^{'} = 0.025$	$m_0 = 37.5$
$\underline{c} = 3$	$\underline{i}^R = 3$	$m_i^{'} = -80$	$i_0 = 10\%$
$\tau = 30\%$	$\alpha = 0.5$	$\underline{m} = 3$	$y_0 = 160$
$\overline{y} = 176$	$\gamma = 0.001$	-	$\pi_0^e = 0.0466$

In adition, from the equilibrium condition (IS), we find that $g_0 = 48$ şi $b_0 = 62.5$.

These values will be used for the analyse of the evolution as well for short run and for long run, evidencing the requests for economic stability for each of the three monetary policies.

Further we will present the dynamics of the economy with the $b_t = \overline{b}$ policy.

3. The dynamics of the economy with constant stock of bonds $b_t = \overline{b}$ policy

3.1. The dynamics of the economy on short run

The model for the dynamics of the economy on short run is composed by the three equilibrium equations IS-LM-SRAS and the dynamic equations $\dot{\pi}_t^e$ *and* $\dot{a}_t$ wherhe state variable is $a_t = m_t + \bar{b}$, so $\dot{a}_t = \dot{m}_t$.

The IS-LM equilibrium highlights the constant real government multiplyer $\hat{k}_g(\overline{b})$, given by (1.i) where we replace $b_t = \bar{b}$ and the real wealth multiplyer $\hat{k}_a = \hat{k}_a(\overline{b})$ given by $(1^{''}.i)$ where $b_t = \bar{b}$.

We will find, in relation with the other politics, that is the only case in wich these multiplyers are constants and do not depend on the states dynamics and that fact simplifies our analyse.

We deduce equilibrium real GDP:

$$\tilde{y}_t = \hat{k}_g \times g_t + \hat{\hat{k}}_a \times a_t - \hat{k}_g \times i_r^{'} \times \pi_t^e + \hat{k}_g \times d^{\bar{b}} \qquad (2.a)$$

where the monetary multiplier does not appear explicitly as it does in the general reprezentation $(1^{'}.h)$, instead through the wealth multiplier $\hat{\hat{k}}_a$ and taking into account that $m_t = a_t - \bar{b}$:

$$\hat{\hat{k}}_a = \hat{k}_a(\bar{b}) - \hat{k}_m(\overline{b}) \qquad (2.b)$$

and consequently, the constant:

$$d^{\bar{b}} = \underline{c} + \underline{i}^R - \hat{k}_m(\bar{b}) \times (\underline{m} + \bar{b}) \qquad (2^{'}.a)$$

Correspondingly, the equilibrium path of the nominal interest rate will be, conforming $(1^{'''}.h)$:

$$\tilde{i}_t = -\frac{1}{m_t^{'}} \times \left[m_y^{'} \times \tilde{y}_t + \left(1 - m_a^{'}\right) \times a_t - (\underline{m} + \overline{b}) \right] \qquad (2.c)$$

In conclusion, the equilibrium paths (IS-LM) of real GDP and nominal interest rate are expresed as functions:

$$\tilde{y}_t = \tilde{y}(a_t, \pi_t^e, g_t, \bar{b}) \qquad (2^{''}.a)$$

$$\tilde{y}_t = \tilde{i}(a_t, \pi_t^e, g_t, \bar{b}) \qquad (2^{'}.c)$$

of state variables (a_t, π_t^e) and the instrumental (control) ones $g_t, \bar{b}$, considering:

$$\frac{\partial \tilde{y}_t}{\partial a_t} = \hat{\hat{k}}_a > 0; \frac{\partial \tilde{y}_t}{\partial \pi_t^e} = -i_r^{'} \times \hat{k}_g > 0, \frac{\partial \tilde{y}_t}{\partial g_t} = \hat{k}_g > 0 \qquad (2.d.1)$$

$$\frac{\partial \tilde{i}_t}{\partial a_t} = -\frac{1}{m_i^{'}} \times (m_a^{'} + m_y^{'} \times \hat{\hat{k}}_a - 1) < 0, \frac{\partial \tilde{i}_t}{\partial g_t} = \frac{i_r^{'}}{m_i^{'}} \times m_y^{'} \times \hat{k}_g > 0 \text{ and}$$

$$\frac{\partial \tilde{i}_t}{\partial g_t} = -\frac{m_y^{'}}{m_i^{'}} \times \hat{k}_g > 0 \qquad (2.d.2)$$

We obtain equilibrium equations of the wealth and expected inflation:

$$\begin{cases} \dot{a}_t = g_t - (\gamma \times a_t + \tau)\tilde{y}_t + (\gamma \times \overline{y} - \pi_t^e)a_t + \tilde{i}_t \times \bar{b} \\ \dot{\pi}_t^e = \alpha \times \gamma \times (\tilde{y}_t - \overline{y}) \end{cases} \qquad (2.e)$$

$$(2.f)$$

where, replacing $\tilde{y}_t$ and $\tilde{i}_t$ founded earlier, (2.a) and (2.c), we deduce the diferential equations systemd characterising the dynamics of the economy:

$$\begin{cases} \dot{a}_t = \alpha_1(\pi_t^e) \times a_t - \alpha_2 \times a_t^2 + \alpha_3 \pi_t^e + \alpha_4 \times g_t + \alpha_5 & (2^{'}.e) \\ \dot{\pi}_t^e = \beta_1 \times a_t - \beta_2 \pi_t^e + \beta_3 \times g_t + \beta_4 & (2^{'}.f) \end{cases}$$

Where:

$$\alpha_1(\pi_t^e)\Big| = \gamma \times \bar{y} - (1 - \gamma \times i_r^{'} \times \hat{k}_g) \times \pi_t^e - \gamma \times \hat{k}_g \times g_t -$$

$$-(\tau + \bar{b} \times \frac{m_y^{'}}{m_i^{'}}) \times \hat{\hat{k}}_a + \frac{1 - m_a^{'}}{m_i^{'}} \times \bar{b} - \gamma \times \hat{k}_g \times d^{\bar{b}} \qquad (2^{'}.e.1)$$

$$\alpha_2 = \gamma \times \hat{\hat{k}}_a = \alpha_2(\pi_t^e) \qquad (2^{'}.e.2)$$

$$\alpha_3 = i_r^{'} \times \hat{k}_g \times \left(\tau + \frac{m_y^{'}}{m_i^{'}} \times \bar{b} \right) \qquad (2^{'}.e.3)$$

$$\alpha_4 = 1 - \hat{k}_g \left(\tau + \frac{m_y^{'}}{m_i^{'}} \times \bar{b} \right) \qquad (2^{'}.e.4)$$

$$\alpha_5 = -\hat{k}_g \left(\tau + \frac{m_y^{'}}{m_i^{'}} \right) \times d^{\bar{b}} - \frac{\bar{b}}{m_i^{'}} \times (\bar{b} + \underline{m})$$

and

$$\beta_1 = \alpha \times \gamma \times \hat{\hat{k}}_a = \beta_1(\pi_t^e) \qquad (2^{'}.f.1)$$

$$\beta_2 = \alpha \times \gamma \times i_r^{'} \times \hat{k}_g \qquad (2^{'}.f.2)$$

$$\beta_3 = \alpha \times \gamma \times \hat{k}_g \qquad (2^{'}.f.3)$$

$$\beta_4 = \alpha \times \gamma \left(\hat{k}_g \times d^{\bar{b}} - \bar{y} \right) \qquad (2^{'}.f.4)$$

Even if the equation $\dot{\pi}_t^e$ is apparently linear in (a_t, π_t^e), but not in β_1 parameter, the differential equation of the wealth is clearly non linear, both through the term $\alpha_2 \times a_t^2$ and by the term $\alpha_1(\pi_t^e | \times a_t)$. Also $\alpha_2 = \alpha_2(\pi_t^e)$ depends on the unknown π_t^e through the wealth multiplier $\hat{k}_a(\bar{b})$ contained in $\hat{\hat{k}}_a$ from (2.b).

These nonlinearities complicates the research of economy dynamics making impossible an analitical solution, the only possible progection being numerical simulation.

3.2. Numerical settings

Using the dates from (T_1), and applying the $\bar{b}$ = constant = b_0 = 62,5 policy, we obtain the multipliers:

$$\hat{k}_g = \frac{320}{218.8 - 0.8\bar{b}} = 1.8957$$

$$\hat{\hat{k}}_a = 1.481 - 1.5165\pi_t^e \qquad (2.b.A)$$

and the constant $d^{\bar{b}} = -43.125$

The paths of real GDP and interest rate, in IS-LM equilibrium are:

$$\begin{cases} \tilde{y}_t = (1.481 - 1.5165 \times \pi_t^e) \times a_t + 208.527 \times \pi_t^e + 1.8957 \times g_t - 81.752 & (2.a.A) \\ \tilde{i}_t = \frac{1}{360}(\tilde{y}_t - 3.9 \times a_t + 262) & (2.c.A) \end{cases}$$

The consistency porving: in the initial moment

$t = 0$, we deduce: $\tilde{y}_0 = 160$, $\tilde{i}_0 = 0.1$.

The variables a_t and π_t^e verifies the dierential equations system:

$$\begin{cases} \dot{a}_t = \left(1.481 - 1.5165 \times \pi_t^e\right) \times a_t^2 - \left(0.77 + 0.5998 \times \pi_t^e\right) - 0.00189 \times g_t \times a_t + \\ + 26.355 \times \pi_t^e + 1.23959 \times g_t + 35.1537 \qquad (2'.e.A) \\ \dot{\pi}_t^e = 10^{-3} \times \left[\left(0.7405 - 0.7582 \times \pi_t^e\right) \times a_t + 104.2635 \times \pi_t^e + 0.94785 \times g_t - 47.124\right] \quad (2'.f.A) \end{cases}$$

with $a_0 = 100,\ \pi_0^e = 0.0466$, where the government expenditures policy $\{g_t\}$ is exogenous.

In a scientific approach, for a constant level of expected inflation

$\pi_t^e = \pi^e$ anf for a constant value of the real goverment expenditures

$g_t = g$, the dynamic equation of the wealth becomes a non homogenous Riccati diferential equation:

$$\dot{a}_t = \delta_1 \times a_t^2 + \delta_2 \times a_t + \delta_3 \qquad (2''.e.A)$$

where $\delta_1, \delta_2, \delta_3$ are the coefficients of $(2'.e.A)$ for $\pi_t^e = \pi^e$ şi $g_t = g$, which become constants.

Sentence: If a^* is the stationary wealth este (the feasible solution of the equation $\dot{a}_t = 0$) then the solution of the wealth goes alog a logistic curve:

$$a_t = a^* - \frac{\delta_4}{\delta_1}\left(1 - c \times e^{-\delta_4 \cdot t}\right)^{-1} \qquad (2'''.e.A)$$

where $\delta_4 = 2 \times a^* \times \delta_1 + \delta_2 > 0, c = 1 + \frac{\delta_4}{\delta_1}\left(a_0 - a^*\right)^{-1}$

Consquence: The monetary policy folows a corrisponding path: $m_t = a_t - \bar{b}$.

Proof: Let a^* the real positive solution of the second degree equation $\delta_1 \times a^2 + \delta_2 \times a + \delta_3 = 0$. Changing the variable $x_t = a_t - a^*$, we obtain the homogenous Riccati equation:

$$\dot{x}_t = \delta_1 \times x_t^2 + \delta_4 \times x_t$$

which, noting $x_t = z_t^{-1}$, becomes a linear diferential equation:

$$\dot{z}_t = -\delta_4 \times z_t - \delta_1$$

with the solution :

$$z_t = c \times e^{-\delta_4 \cdot t} + z^*$$

where $z^* = -\delta_1 / \delta_4$ is the particularly solution.

We find the path $(2'''.e.A)$ of the evolution of the economy for the government expenditure policy $g_t = g$ for different chosen values of g and for different values of expected inflation $\pi_t^e = \pi^e$.

The real paths, instead, will be obtained from $(2'.e.A)$ and $(2'.f.A)$ using the numeric simulations.

3.3. Long run evolution of the economy using the policy $b_t = \bar{b}$ - fixed

The long run evolution satisfies, by definition, the stationarity condition:

where $\dot{a}_t = 0,\ \dot{\pi}_t^e = 0$, so

$a_t = a^*$, constant; $\pi_t = \pi_t^e = \pi^*$ constant and $\tilde{y}_t = \bar{y}$ (2.g)

Debt to the equation (2.e) the stationarity condition for the wealth corrisponds to a null extended budgetary. That condition will be satisfied for a level

$g_t = g^*$ of the real government expenditures $g^* = \gamma \times \bar{y} - i^* \times \bar{b} + \pi^* \times a^*$ (2.h)

where, replacing i^* with its IS-LM equilibrium value $i^* = \tilde{i}_t$, given by (2.c),we deduce:

$$a^* = \left(\frac{1-m_a^{'}}{m_i^{'}} \times \bar{b} - \pi^*\right)^{-1} \times \left[\left(\tau + \frac{m_y^{'}}{m_i^{'}} \times \bar{b}\right)\bar{y} + \frac{\bar{b}}{m_i^{'}} \times \left(\bar{b} + \underline{m}\right) - g^*\right] \quad (2.i)$$

The second equation is infered from the condition $\tilde{y}_t = \bar{y}$ anf rom (2.a) we find that:

$$\hat{\hat{k}}_a \times a^* - i_r^{'} \times \hat{k}_g \times \pi^* = \bar{y} - \hat{k}_g\left(g^* + d^{\bar{b}}\right) \quad (2.j)$$

Replacing a^* from (2.i) we obtain a second degree equation in π^*, which is solved choosing a convenient solution: $\pi_{1,2}^*$. In practice, the analyse could be made only through numerical simulations.

So, if for the long run level of the government expenditures we choose the value $g^* = 53$, which shows a rise of 10.4 % in respect with the current level $g_0 = 48$, we find\;

$$\mathrm{a}^* = 5.7458 \times \left(\pi^* + 0.012187\right)^{-1} \quad (2.\mathrm{i.A})$$

$$208.527\pi^2 - 162.452\pi + 6.5932 = 0 \quad (2.\mathrm{j.A})$$

where $\pi = \pi^*$, with $\Delta = 5221.8 > 0$ so $\pi_{1,2}^* \in R$ with $\pi_1^* = 0.0429, \quad \pi_2^* = 0.736$ $(2^{'}.j.A)$

where, normally, π_2^* is not to be accepted (inflation should be 73.6%).

There are two points of stationary equilibrium:

$E_1^* : a^* = 104.303; \quad \pi^* = 4.39\%$

for which we find: $m^* = 41.803$ -which implies a rise of 11.47% in respect with the current real stock of money m_0;

$i^* = 0.55 - 1.271 + 0.818 = 0.0977$ i.e.9.77 % so a rise of the nominal interest rate.

The second equilibrium is: $E^* : \pi^* = 73.6\%; \quad a^* = 7.68$ that would signify the colaps of the economy.

3.4. The macroeconomic stability using the $b_t = \bar{b}$ - fixet policy

We liniarize the dynamic model $\left(\dot{a}_t, \dot{\pi}_t^e\right)$ given by $\left(2^{'}.e.A\right), \left(2^{'}.f.A\right)$ in the naberhood of the equilibrium E_1^*. We note the corresponding Jacobian:

$$J_1^* = \begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{pmatrix} \quad (2.k)$$

where $\mathrm{a}_{11} = \left.\frac{\partial \dot{\mathrm{a}}_t}{\partial \mathrm{a}_t}\right|_{E_1^*} = 294.67; \qquad \mathrm{a}_{12} = \frac{\partial \dot{\mathrm{a}}_t}{\partial \pi_t^e} = -16533.43$

$\mathrm{a}_{21} = \frac{\partial \dot{\pi}_t^e}{\partial \mathrm{a}_t} = 0.07384; \qquad \mathrm{a}_{22} = 0.025183$

We f ind $\begin{cases} T_r J_1^* = 294.695 & (2.k.1) \\ \det J_1^* = 1228.27 & (2.k.2) \end{cases}$

In accordance with Olech theorem (Oprescu, 2006) the evolution of the economy, for the $\bar{b}$ - fixet policy and for the dates presented above $(g^* = 53, m^* = 41.8, etc.)$, is unstable because $\det \mathrm{J} > 0, \quad \mathrm{T_r J} > 0$.

The verification is made dyrectly: the characterisctic equation:

$\lambda^2 - \left(T_r J\right) \times \lambda + \det.\ J = 0 \Rightarrow \lambda^2 - 294.695\lambda + 1228.27 = 0$ with $\lambda_1 > 0, \lambda_2 > 0$.

Similarly, calculating the Jacobian in E_2^* we find $T_r J_2^* = 4{,}591$ and det. $J_2^* = 0.537$, which is also an unstable stationary point.

In concluzion, applying th the fixed stock of real bondes do not enshure the long run stability, for a fixed policy of government policy $g_t = g^*$. An altrnative direction of research is to fix the policy $\{g_t\}$ as a feed-back mechanism for real GDP or for the growth rate of real GDP, so, for the economic growth rate.

Conclusion

These results are to make attention to the political decidents that the the simple extrapolation of the growth economic tendencies with the same rate is not valid on the long run.

More, applying the comparative statics method, the governers can identify the effects on the current and long run growth rate of the fiscal or monetary policies levers which has to be implemented.

There was made the simulations for Romania (Andrei 2006, Andrei, Imperato, Oprescu, 2009) both in the condition of real supply of money is the state variable $(\dot{m}_t = \dot{a}_t)$ and in the case of constant real supply of money $m_t = \overline{m}$, or the real bonds stock as state variable $b_t (\dot{a}_t = \dot{b}_t)$, with constant growth rate of the monetary base (fixed μ).

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PROACTIVE MENTALITY FOR BUSINESS DEVELOPMENT IN ROMANIA

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Abstract. *Romania, for that matter, all countries in the world can not overcome the financial crisis without business development.The emergence of the financial crisis has created a feature based on money quadrant by Robert Kiyosaki namely that from the outset, an employee must be a good worker and a good investor. In Robert Kiyosaki's view, this means that early in career we should be aware that there are four situations in which making money ie: employee, self employed, owner and investor.*

Keywords: business; principles; leadership; duty; excellence.

JEL Code: B12.
REL Code: 1K.

1. Introduction

We used to say we have four branches of government. The first is the legislative power represented by the Parliament, which builds the country's laws on behalf of people that appointed it. The second is the executive power, meaning government of a country which implements the laws passed by Parliament. The third power in the state is justice, which ensure that country's laws apply. The press is the fourth in the state and the youngest, because it was appointed as a particular power in the last 20 years, based on the following arguments: that informs the public, influences and shapes the public opinion and in many cases, handles the society's decisions (population) which it serves.

According to some authors (Apostol, 2009) there is a fifth power in the state, represented by the crisis with the argument that the economic crisis or on the basis they were "dictated responses, actions, decisions of all leaders: the policy and those in business". A peculiarity of the fifth power in the state is that, unfortunately, dramatically influences the other four powers of state activity.

2. Robert Kiyosaki solution: be a bank, not a banker

Robert Toru Kiyosaki was born in 1947, is an investor, businessman and motivational literature American author. Kiyosaki is best known through a series of motivational books "*Rich Dad, Poor Dad*." He wrote 18 books which have sold in a total of 26 million copies.

Although he initially self-published, then, Warner Books, a division of Hachette Book Group USA, took over publication of his books, they now defending as publisher Rich Dad. Three of his books, *Rich Dad, Poor Dad, Money Quadrant and Investor's Guide* were simultaneously in the top 10 best books sold, ranking compiled by the Wall Street Journal, USA Today and The New York Times. *Rich kid, smart child*, was published in 2001, the author having the desire to help parents to familiarize children with financial concepts.

He also created the educational game "Cashflow" published in both traditional and software version. The game knows three versions and addresses both parents and children. He released numerous cassettes and discs of the series "Rich Dad".

In Robert Kiyosaki's view, this means that early in career we should be aware that there are four situations in which making money ie: employee, self employed, owner and investor (Kiyosaki, Lechter, 2009).

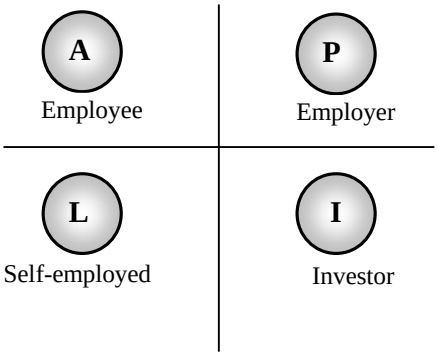

Figure 1. *Money quadrant*

The emergence of the financial crisis has created a feature based on money quadrant by Robert Kiyosaki, namely that, from the outset, an employee must be a good worker and a good investor. The peculiarity is that once the first month of employment, a graduate school should opt for Pillar 2, private, for pension and for pillar 3, optional, if he want a soothing pension at the end of the active part of life.

In conditions of economic crisis, financial analyst role in a company grow substantially. According to Robert Kiyosaki, operators should exercise caution in the market of bank loans and debt and is appropriate to divide into two categories: good and bad. In essence, good debt liabilities are those which lead to increase in real assets and reduced real liabilities and bad debts are those which reduce the actual asset and increases actual liability.

3. TopProfil tool. Jim Collins – excellency in business

TopProfil is the only test instrument built in Romania, among the strongest currently available on the market, starting from the premises to promote business excellence by Collins. From this point of view, use the sample can be useful in identifying people and team performance, especially in identifying a number of strengths and areas for further development to enhance professional performance. Data collected show the usefulness of the test segment coaching and training, enabling people and teams alike to become more competitive (e), by implementing the suggestions offered by HR consultants, the review TopProfil.(1)

3.1. Jim Collins principles

a. Principle I: The leader of level V

"Every employee of an excellent company is the leader of the V - one who manages to build a lasting excellence in his performance and those who follow him through a paradoxical blend of personal humility and professional will."(1)

b. Principle II: First "who" and then "what"

"In a company, choosing the right people is the key to the team. Most important is to identify the size of "being" – "who am I (are we)?" – at the individual and then to the team. Strategies and targets members/team, that "what we do" pragmatic will follow by itself as long as the identity of members and of the team has been identified."

Managers who live mainly – "Who" first and then "what" – are artisans of a system built on people's character traits and not based on their experience. They listen to their subordinates and motivate them for maximum contribution, using rewards to retain and not to

lead to work. Not binding and does not tolerate employees unsuitable, give the best conditions for developing the right employees with the building and shared mission, vision and values of the organization.

Managers who are in opposition to accept the compromise, tolerating inappropriate employment candidates and employees comply with rules which they impose.

c. Powers characteristic behavior that reflects the principle of <<first" who "and then" what" >>:

- it counts who pay not how you pay;
- rigorously decisions for people.

Skills for "it counts who pay not how you pay":

- Do not use appropriate behavior to obtain a reward, but for attracting and retaining the right people;
- Give more importance to the personality traits of employees in the field of education, practical skills, specialized knowledge or work experience;
- Reject the imposition of unilateral viewpoints;
- Motivates team members to make the maximum contribution.

Skills for "rigorous decisions for people":

- When doubts rather not commit;
- When you feel the need for personal change work;
- Give the best opportunities to the best people, not burdens them;
- retain the best people;
- ensure that people's best not to worry for their job;
- Consider that: mission, vision, values, team goals are the product team leader and not unilaterally product.

d. Principle III: Facing the reality without losing confidence

"One company actually makes an excellent anchor to transform dreams into deeds. Keeping faith absolute success regardless of difficulties and dealing with raw facts of reality, whatever they may be, shall finally achieve the vision of lifelong learning and concentrated knowledge accumulated of facts."

e. Principle IV: The Hedgehog Concept

"The mission, vision and values of excellent companies are subordinated to "Hedgehog Concept" which is defined to answer three key questions that constitute the focus of a successful company can capitalize on opportunities:

- What can be the best in the world?
- What you deeply passionate about?
- What trigger your economic engine"

f. Principle V: Culture course

"In a culture of excellence organization there are developing self discipline through skills-based:

- freedom of action and accountability in one setting;
- self-discipline organization members in their desire to improve processes;
- difference between discipline and dictatorship;
- focusing on important goals determined by the concept of hedgehogs, dropping things wrong goals.

Organisational culture is what it is and make the organization and reflects the beliefs, attitudes and commitments of its leaders.

- Excellent organization – innovate and show self-discipline within their Hedgehog Concept.
- Organization beginner – innovate by taking advantage of every opportunity;
- Hierarchical organization – inhibit innovation and self-discipline in harmony with the standards required;

- Bureaucratic organization – inhibit innovation and self-discipline through procedural restrictions which makes thinking.

Skills characteristic behavior that reflects the principle of "Culture Discipline":

- growing freedom and responsibility in a given condition;
- distinguish between the culture of discipline and discipline tyranny;
- focusing on important goals (subordinate "Hedgehog Concept").

Skills to "foster freedom and responsibility in a given condition":

- Build a framework for consistent system with clear rules;
- Giving people freedom of action and responsibility within the given system;
- Continuous improvement framework for system self-discipline to maintain its level.

Skills to "make the difference between discipline and tyranny culture of discipline";

- Encourage self-discipline without imposing discipline;
- Management system and not of men;
- Improved participation by encouraging employees and not on its own unilateral decisions.

Skills to "focus on important goals (subordinate "Hedgehog Concept")"

- To say "No thanks" great opportunities that do not match "Hedgehog Concept"
- Give priority lists "do not do that" than with "what to do";
- Allocation of budgets to support activities that sustain "Hedgehog Concept"
- Make a distinction between what is important and what is urgent.

3.2. Operational core model

Operational core: the heart of the organization, responsible for business performance motor.

Core operational areas:

- People – people who are responsible and accountable to employees and their job duties - creation and action capacity of the core operations;
- Processes – the processes governing the organization and structure work – thinking of all the shares in the form of strategies, tactics and procedures;
- Technology – how the act occurs or when the organization performs the process.

In Romania there is a concept "business tuning" promoted by 4 Business Tuning Company, which essentially consists in applying the principles of Jim Collins for a business in Romania. We present, in short, this concept, in the figure below.

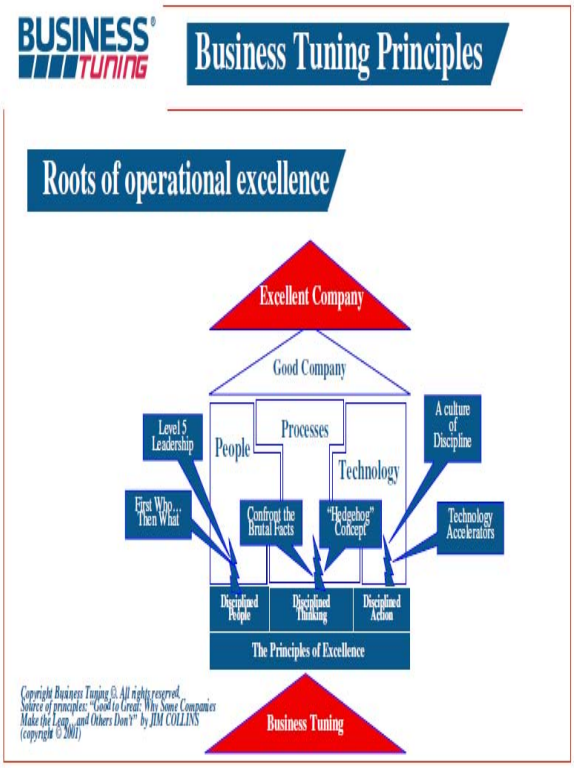

Figure 2. *Business Tuning*

3.3. Impact of excellence principles

"We are what we repeatedly do. Excellence is not accidental but a skill action "- Aristotle

Individual tuning

- maximize professional behavior management individually evaluated with Top Profile tool. Each manager may choose to use "plug individual tuning" based on skills development skills to increase individual performance excellence in management

Powers of excellence:

- behavior acquired by learning to think and act on the principles of business excellence.

Performance:

- transforming powers of excellence in results or actual visible effects and measurable to asuumed objectives.
- Individual excellent disciplined = Disciplined individual performance x (Disciplined thinking + Actions disciplined).

4. Conclusions

Data collected show the usefulness of the test segment coaching and training, enabling people and teams alike to become more competitive (e), by implementing the suggestions offered by HR consultants, the review TopProfil.

Top Profile is a comprehensive assessment tools based on managerial behavior "Principles of business excellence" identified by Jim Collins.

Note

(1) "Evaluation professional behavior management." Available online at http://www.topprofil.com/resources/download/demo_raport_top_profil_echipa.pdf

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THE EUROZONE DEBT CRISIS. CAUSES AND POSSIBLE SOLUTIONS. THE CASE OF GREECE

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Abstract. *This article presents the debt crisis in eurozone, which is the result of a concept error of the Economic and Monetary Union. The situation has become critical for countries such as Greece, Portugal, Ireland, Spain. The duality that characterizes nowadays the financial aspect of the European integration can be barely maintained on long term, because the Monetary and Economic Union operates with the participation of 16 member states, while the members of the eurozone remain sovereigns on their budgetary policies. Without broad structural reforms, the sustainability of the Economic and Monetary Union is questioned*.

Keywords: debt crisis; budget deficit; public debt; budgetary policy.

JEL Codes: E52, E58, E63, F36.
REL Codes: 8M, 20H.

1. General considerations regarding the coordination between the budgetary policies and the monetary policy in Eurozone

The regulations for the eurozone have been established by the status of the European Central Bank and the conditions of adherence to the eurozone have been imposed by the Treaty of Maastricht and through the Stability and Growth Pact. Afterwards, these conditions have become less strict, in order to accept the adherence of Italy, who had a great budgetary deficit. This has been a political decision by means of which smaller and more different economies in comparison with Germany and France were allowed to enter the eurozone. But the smaller states were more susceptible to divergencies, yet this didn´t represent a problem as the Monetary Union´s purpose is precisely to achieve the convergence of the member states´ economy.

The development of the national economies has an impact on the inflation perspectives within the eurozone, they influence the monetary conditions of the area and as a consequence the economic policies, especially the budgetary ones, of the states participating to the eurozone has to be rigurously monitored imposing their close coordination.

The budgetary policies within the Eurozone are elaborated by the national governments of the member states, but they have to respect the regulations of the Stability and Growth Pact, which represent an instrument of budgetary coordination. The budgetary policy is maybe the one registering the greatest differences between member states, due to the fact that the public budget represents the most representative form of expression of the national sovereignty from economic point of view. Important instrument of economic orientation, the public budget, by means of the expenses and public incomes, influence both public and private investments and

the savings and monetary circulation. For these reasons, the coordination of the budgetary policies of the eurozone states is particularly difficult to be realized (Seria Micromongrafii. Politici europene, 2005, *Uniunea_Economică_şi_monetară.pdf*, pp.10).

The arrangements regarding the coordination between budgetary policies and monetary policy within the eurozone are quite complex. Among the institutions participating to the coordination process, the European Commission occupies a central position, taking part to the meetings of all the other bodies, establishing the agenda for the European Council and proposing the procedures concerning the financial sustainability of the member states.

However, in the eurozone there hasn´t been yet developed a framework for political cooperation between the European Central Bank and the national governments, even if the single currency creates the necessity of a close collaboration. The absence of a place where there can be defined a common position for monetary and budgetary policies makes the institutional organization of the eurozone more oriented towards the information exchange, than towards the identification of action lines for the coordination of activities. The European Central Bank, doubtful concerning the budgetary decisions of national governments, tend to defend the freedom of action in order it might, if necessary, counterattack the tendencies towards budgetary deficits. The national governments, unable to convince the European Central Bank to pay more attention to the specific conditions of their economies, being unfamiliar with the budgetary behavior of the other governments, are skeptical regarding the cooperation and prepared to counterattack any position of restrictive character of the monetary policy and they are obstinate concerning the acceptance of the supplementary reduction of their fiscal sovereignty (Panico, Vazquez Suarez, 2008, p. 16).

The method used for the coordination of economic policies is used especially on a "slight consolidation", that is on the ability to convince the national governments to follow an appropriate behavior by means of monitored dialogue, information exchange, warnings and pressures.

The procedures regarding the intensification of the coordination of monetary and budgetary policies try to establish ˝common behavior regulations˝, mentioning the Procedure of excessive deficit and the Stability and Growth Pact. The procedures are implemented by means of a report made by the European Commission on the base of the results of multilateral surveillance. The Financial and Economic Committee examines the report and expresses its opinion about it. Economy and Finance Ministers Council of the European Union (ECOFIN) takes a formal decision regarding the existence of a violation and recommend to the concerned state correction measures, imposing two limit terms concerning the adoption of measures and the rectification of violation. In case the member state forgets about the limit terms, ECOFIN can notify this issue and may demand to the state to make a deposit to the Commission, the amount of which depends on the level of violation. If ECOFIN decides that during a period of two years the violations haven´t been rectified, it may demand the change of the deposit in penalty.

2. Debt crisis triggers in the eurozone

With a certain delay, the Eurozone has been affected by an international financial crisis having been unleashed in the USA in August 2007. Since the beginning of the second semester of 2008, eurozone GDP registered a dramatic decrease, counting at the end of the year a real increase rate of only 0.5%, in comparison with the former year, when this rate was 2.8%. 2008 represented a year of profound recession, with a GDP decrease of 4.1% in the eurozone, followed by a slight revival in 2010.

The global effect of these economic conditions was the drastic deterioration of the general budget balances of the governments of the eurozone member states, reaching a budgetary deficit of 6.3% of GDP in 2009, in comparison with 0.6% of GDP in 2007 and 2% of GDP in 2008. The public debt registered a continuous increase from 66% of GDP in 2007

to 78.7% of GDP in 2009. The budgetary deficit was considerable in Spain, where it increased from 4.1% in 2008 to 11.2% in 2009, while during the years preceding the crisis it has registered excess. Greece represents a particular case, the past budgetary deficits increasing continually, reaching 13.6% of GDP in 2009. As a consequence, in 2009, Greece, Belgium, Germany, Italy, France, Spain, Ireland, Holland, Austria, Portugal, Slovenia and Slovakia entered the procedure of excessive deficit. The member states having the best position concerning budgetary balance and public debt are Denmark, Sweden and Finland, and it is due to the high budgetary excesses registered before the beginning of the crisis.

Table 1

The evolution of budget balances during the period 2006-2011 within the eurozone (% of GDP)

Member state within the eurozone	2006	2007	2008	2009	2010	2011
Belgium	0.3	-0.2	-1.2	-6	-5	-5
Germany	-1.5	0.2	0	-3.3	-5	-4.7
Ireland	3	0.1	-7.3	-14.3	-11.7	-12.1
Greece	-2.8	-5.1	-7.7	-13.6	-9.3	-9.9
Spain	1	1.9	-4.1	-11.2	-9.8	-8.8
France	-2.3	-2.7	-3.3	-7.5	-8	-7.4
Italy	-3.3	-1.5	-2.7	-5.3	-5.3	-5
Luxemburg	1.4	3.6	2.9	-0.7	-3.5	-3.9
Holland	0.6	0.2	0.7	-5.3	-6.3	-5.1
Austria	-1.6	-0.4	-0.4	-3.4	-4.7	-4.6
Portugal	-3.9	-2.6	-2.8	-9.4	-8.5	-7.9
Slovenia	-1.3	0	-1.7	-5.5	-6.1	-5.2
Finland	4	5.2	4.2	-3.8	-4.3	-2.9
Malta	-2.6	-2.2	-4.5	-3.8	-4.3	-3.6
Cyprus	-1.2	3.4	0.9	-6.1	-7.1	-7.7
Slovakia	-3.5	-1.9	-2.3	-6.8	-6	-5.4
UE-16	-1.3	-0.6	-2	-6.3	-6.6	-6.1

Source:*http://ec.europa.eu/economy_finance/publications/european_economy/2010/pdf/ee-2010-4_en.pdf*

In the case of three eurozone countries: Italy, Belgium and Greece it is foreseen a public debt of over 100% in 2010 and 2011:

Table 2

The evolution of public debt within eurozone during the period 2006-2011 (% of GDP)

Member state within the eurozone	2006	2007	2008	2009	2010	2011-forecasts
Belgium	87.9	84.2	89.8	96.7	99	100.9
Germany	67.6	65	66	73.2	78.8	81.6
Ireland	24.9	25	43.9	64	77.3	87.3
Greece	95.9	95.7	99.2	115.1	124.9	133.9
Spain	39.6	36.2	39.7	53.2	64.9	72.5
France	63.7	63.8	67.5	77.6	83.6	88.6
Italy	106.5	103.5	106.1	115.8	118.2	118.9
Luxemburg	6.7	6.7	13.7	14.5	19	23.6
Holland	47.4	45.5	58.2	60.9	66.3	69.6
Austria	62	59.5	62.6	66.5	70.2	72.9
Portugal	64.7	63.6	66.3	76.8	85.8	91.1
Slovenia	26.7	23.4	22.6	35.9	41.6	45.4

Member state within the eurozone	2006	2007	2008	2009	2010	2011-forecasts
Finland	39.2	35.2	34.2	44	50.5	54.9
Malta	63.7	61.9	63.7	69.1	71.5	72.5
Cyprus	64.6	58.3	48.4	56.2	62.3	67.6
Slovakia	30.4	29.3	27.7	35.7	40.8	44
UE-16	68.3	66	69.4	78.7	84.7	88.5

Source: http://ec.europa.eu/economy_finance/publications/european_economy/2010/pdf/ee-2010-4_en.pdf

In economic literature there´s appeared two hypotheses regarding the triggers of debt crisis within the eurozone:

- The unhealthy combination of fiscal indiscipline of the member states and the speculative out of control attacks on the financial markets
- The existent imbalance between the eurozone member states, due to the conception defect of the Economic and Monetary Union

In fact, the main cause of the internal structural imbalances in Economic and Monetary Union is the great current account imbalances within the Economic and Monetary Union. Though the current account imbalances have internal roots, the associated problems do not limit only to national level. Taking into account the collateral effects on the financial markets integrated in the eurozone, they represent a problem also for other member states and for the Economic and Monetary Union itself. The main problem for the eurozone member states with current account deficits was the fact that the capital inflow hasn´t always been efficiently allocated. In Spain and Ireland there´s been registered an enlargement of the real estate markets, in Greece the great government deficits have been financed and in Portugal the private consumption has been supported. This allocation stimulated the domestic demand and as a result of the inflexibility of the employment market, the level of wages increased more than the level of work productivity. This lead to the reduction of the competitiveness for the concerned countries and as a consequence the imports have increased, the exports have decreased and the current account deficit has accentuated.

The debt crisis within the eurozone affected profoundly especially three states: Greece, Spain and Portugal, leading to a lack of trust between these countries and the other member states. The possible default of the Greek public debt would have a quite reduced global effect on the other member states, taking into account the fact that the Greek GDP represents only 2.5% of the eurozone GDP. A greatest danger caused by the default of the Greek public debt would be the loss of confidence of foreign investors in the other eurozone countries, especially in Portugal and Ireland, which are also confronting budgetary deficit issues and considerable public debts. Italy has also a great public debt, exceeding 100% of GDP, but its deficit is though under the eurozone average deficit and as a result, it doesn´t make part of the category of countries being the most exposed to risk. Spain has a relatively decreased debt, of only 53.2% of GDP in 2009, being under the Eurozone average with about 25%.

3. The impact of eurozone debt crisis on Greece

The economy of Greece registered the fastest increase within the eurozone during the period 2000-2007, with average annual increases of GDP of 4.2%. However, the GDP per individual remained under the Community average, being in 2009 at 93% of the Community average. The economy of Greece confronts significant problems, including the increase of unemployment, an inefficient bureaucracy, fiscal evasion and corruption.

The international financial crisis had a profoundly negative effect on Greece, especially on the industries – tourism and maritime transport, having been affected by the economic decline, registering in 2009 a decrease of income of 15%.

How can be explained this debt crisis present in Greece? Greece have clearly a unsustainable budgetary policy. At the same time, since the adherence to the Economic and Monetary Union in 2001, this country had an inflation rate permanently higher than the eurozone average, generating a significant deviation from the purchasing power parity and determining important losses of the competitiveness and high current account deficits (Arghyrou, Tsoukalas, 2010, p.6). In order to maintain the orientations of the Economic and Monetary Union, the Greek government declared permanently and deliberately before and after the adherence to the eurozone false official economic statistics. The international financial crisis evidenced the deteriorated budgetary position of Greece, generating among others the increase of the unemployment rate, a huge public debt of 115.1% of GDP in 2009, the massive increase of the budgetary deficit from 5.1% in 2007 to 13.6% in 2009.

In order to overcome the debt crisis in Greece, there have been taken into account several solutions, such as the withdrawal of Greece from the eurozone, accompanied by the restructuration of its public debt and the financial support from the part of the other eurozone member states. Some specialists consider that the retreat of Greece from the eurozone wouldn´t have been a feasible solution, because the expenses would have exceed with a high rate the benefits. Any sign of retreat from the eurozone would have result a massive retreat of capital affecting seriously the bank system. Finally, there has been chosen the financial support.

The ministers of Finance of the eurozone and the International Monetary Fund approved at the beginning of May 2010, an emergency package of financial loan for Greece of 110 billion Euro for the following 3 years, that is to be covered by the loans of the eurozone member states (80 billion Euro), and by the loan accorded by the International Monetary Fund (30 billion Euro). In exchange, in order to obtain financial support and to avoid bankruptcy, the Greek government assumed austerity measures in amount of 30 billion Euros. As measures we can mention: the 13^{th} and the 14^{th} salaries won´t be accorded any longer, the minimum retiring age will be 60 years, the VAT will increase from 21% to 23%, the budgetary expenses will be reduced to 10% of GDP, the public investments will be reduced, a new tax will be introduced to illegal constructions, new taxes will be imposed on pollution, gambles and profits of companies. It is estimated a reduction of public expenses with about 7% of GDP and an increase of incomes of about 4% of GDP until 2013.

Beside these direct fiscal measures, there have been initiated a series of structural fiscal reforms such as: the reform of pensions, of healthcare and fiscal system. Some of these concrete measures are:

- The increase of standard retiring age to 65 years, without the possibility of anticipated retirement;
- The implement of the accrual accounting within the hospitals;
- The limitation of exemptions and deductions from the income tax;
- The fierce fight against fiscal evasion;
- Auditing individuals owning wealth and carrying out independent activities.

The progress registered after the implement of this program is monitored each semester on the base of some quantitative performance criteria.

4. Possible measures for the exit of eurozone from debt crisis

The Eurozone is extremely prudent in its economic policy actions. While the European Central Bank was forced to deal with turbulences on the market, its actions were tied to those of the EDF and of other important central banks. Beside the advantages of a common currency, the governments of the European Union´s member states showed a strong solidarity. Some of them lead directly to a significant financial support for the countries not having adhered to the Euro currency. A monetary union with inflation differences within member

states supports the risk of the appearance of a debt spiral leading to the increase of debts according to the inflation level.

As the profound causes of the current account imbalances have an internal character, it is very important to act in order to correct them, an issue being in the charge of the member states. Thus, it is needed a series of structural reforms necessary to increase the competitiveness of commercial societies on the internal market by means of the increase of productivity and costs control. The countries having current account deficits must improve the flexibility of employment markets and to consolidate the national budgets. The countries having current account surplus must act by stimulating the internal demands and the imports utilizing incentive fiscal policies.

The ministers of Finance of the 16 eurozone member states signed on the 7th of June 2010 an agreement allowing the introduction of a European Financial Stability Facility counting an amount of 440 billion Euros, as guarantees of the European Union´s member states. This ˝vehicle with special purpose˝ will help the eurozone member states in case they won´t be able to solve the economic problems, each country being allowed to loan 440 billion Euros. A second proposal for the assurance of financial stability on long term having been made by the European Union leaders refers to the creation of a single authority in charge with the surveillance and the coordination of budgetary policies. But this proposal has no chance to be materialized because of the opposition of France and Italy.

In our opinion, the optimal solutions could be the fundamental changes regarding the restructuration of the Economic and Monetary Union and the solution of the contradictions referring to imposing a single currency and a common monetary policy in countries having different budgetary policies. Beside the solution of serious budgetary issues within the eurozone, it is considered beneficial the creation of a surveillance mechanism and assistance within it, which might react faster to crises situations. The new system should also define clearly the assistance costs, both in monetary terms and loss of fiscal sovereignty terms.

Conclusions

Several specialists and we consider that the eurozone is not an optimal area for a single currency, as the member states gave asymmetric feedbacks regarding different types of markets and economic shocks. It is considered that the healthy fiscal nucleus of the eurozone is composed of three states: Germany, Finland and Holland. As a result, the eurozone would form a closer and stronger union if it enlarged on a more limited geographical area.

The duality that characterizes nowadays the financial aspect of the European integration can be barely maintained on long term, because the Monetary and Economic Union operates with the participation of 16 member states, while the members of the eurozone remain sovereigns on their budgetary policies. Without broad structural reforms, the sustainability of the Economic and Monetary Union is questioned.

In conclusion, the adherence to the eurozone having a weak structured economy generates net expenses and in case it is not accompanied by adequate national policies it doesn´t guarantee the economic catch up. At the same time, the member states have to be competitive, needing for this purpose a structural adaptation of the economy before the adherence in order to reduce the impact of the competitiveness as a result of the participation to an economic and monetary union. As a result, we consider that Romania should wait until it becomes competitive and prepared to enter the eurozone, because it hasn’t the degree of optimality desired by the institutors, the case of Greece being a relevant example.

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IRREDEEMABLE EU FUNDS ROLE IN ASSURING THE STABILITY OF THE ROMANIAN ECONOMY

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Abstract. *This paper analyzes the elements that ensure financial and monetary stability in an emerging economy, taking for example the Romania's situation, within the context of the crisis which has disrupted the global economy. The emphasis is placed on irredeemable EU funds allocated to Romania, which were analyzed both in terms of projects approved (but whose implementation has not yet started) and in terms of contracted projects in the ongoing process (reflecting the fact that they actually "injected" money received by the Romanian economy).*

Keywords: economic and financial crisis; emerging economy; economic recovery; monetary and financial stability; irredeemable EU funds.

JEL Codes: G01,G10.

1. Introduction

What is an emerging economy? How do we quantify the economic and financial stability of a country? What impact do the irredeemable European funds have and how can we increase stability? These are some of the questions raised in correlation with the economic crisis in Romania that we are tring to give an answer to in this article.

The crisis we are experiencing is a very valuable lesson for all businesses that are part of the economic system, reminding every one that economic growth based mainly on credit and irrational consume can only lead to system collapse. In other words, as it was realistically defined by Dinu Marin, BD member of the NBR, “the crisis is the disaster of casino economy”, casino economy meaning “the economy increasing its production by resorting to risk instruments with no cover in sustainable profits and market extending beyond rationality.”

2. Emerging economy versus financial and monetary stability

What is an emerging economy? According to prof dr Ene Dinga this is “an economy in an ongoing process of economic and financial structuring... a structuring made to ensure internal sustainability, on one hand, and external economic shocks attenuation, on the other hand”. “The Achilles heel” for an emerging economy is represented both by its reduced ability to cope with the problems generated by an economic and financial crisis and its difficulty to combat the crisis negative effects.

Financial stability of a country is a component of its economic stability and it can be compared to one’s health: “you realize its importance when you no longer have it” (Mugur Isarescu). Romania’s financial stability is closely linked to the external debt problem; its strong upward trend is now a real danger to the national economy, which is comming closer to enter a “death spiral”: “contracting new loans to repay old loans reached due”. “I think the

issue of external debt must be deepened. We borrowed the money, but how do we give it back? European funds could bring the economic welfare that would help to repay the debt". (Mugur Isărescu).

Along with the onset of the current crisis (in the second half of 2007) monetary and financial stability of emerging countries (including Romania) have to face difficult and painful tests. These difficult times the Romanian economy is passing through have even higher economic and social costs as before, taking into account that Romania has gone through five other financial crises till now. In the report presented to the European Parliament by the reporter Enrigue Salom Guerrero on March 9, 2010 regarding the financial and economic crisis effects on emerging counties it is stated the fact that these countries although they have not caused the crash and are not at its origin, are the ones suffering the most disastrous consequences. The crisis roots are found in the developed countries, they are linked to the expansion, among them, of certain opaque practices in the financial system, the power of speculative practices, the greed of quick and artificial benefits in the real economy and the irresponsibility of many financial institutions managers. What was initially perceived as a financial crisis affecting to a lesser extent the developing countries (due to the fact that they are not fully integrated into the global financial system) has proven to actually be a very strong economic and social crisis. This crisis may turn into a real "tsunami" that could destroy the emerging economies because it affects virtually all areas of their specific activity.

While the crisis began to lose intensity in developed countries, it is increasing in emerging and developing countries. In other words, economically advanced countries come out of the crisis, and countries that mostly need to overcome the current economic and social problems continue to sink deeper. For developed countries the crisis is a temporary difficulty in their welfare, but for many emerging countries it is likely to become a real economic and social abyss, that will take at least a decade of struggle to pass over, severely affecting an entire generation. The persistence of the crisis in emerging countries is an obstacle to their economic growth, the European Commission stressing that economic growth in emerging countries "will create jobs and prosperity in other countries, contributing to world peace and stability".

Monetary stability has been conceived and implemented for several decades on three pillars: monetary aggregates targeting, exchange rate targeting and inflation targeting. In Romania the last two pillars are currently used as strategies to ensure monetary stability. In order to stabilize inflation within its assumed variation (needed to provide price stability) the central bank adjusts its monetary policy instruments, taking into account the amplitude of fluctuations generated by the national economic policys. Romania's GDP stabilization involves stabilizing the interest rate and exchange rate, because their sudden growth is representing a danger for financial market and macroeconomic balance.

In order to ensure price stability in Romania several elements of an emerging economy should be taken into account: sudden rising of supply and demand, financial markets with a reduced depth, economic vulnerability in rapid drop of capital flows, fragility of financial institutions etc. All these challenges that can materialize very quickly (as evidenced by the evolution of Romanian economy after the outbreak of the crisis) are increasing the complexity of monetary decisions aimed at price stability and implicitly targeting inflation.

Regarding the role of price stability and financial stability in elaborating the monetary policy, according to the analysis of the Romanian monetary policy conducted by the Romanian central bank governor, it should be kept in mind that on long term there is no negative correlation between inflation and unemployment since the Phillips curve does not take into account and inflationary expectations, which means that "any negative correlation between inflation and unemployment should be at most a temporary one" (Bernanke, 2006). So accepting inflation flare-ups is not a "perpetual motion" leading automatically to a lower inflation rate. The primary objective of monetary policy is price stability by targeting inflation, contributing to achieving sustainable economic growth and macroeconomic stability

(Bernanke, 2006). If the financial system is not stable (with inflation rates over a number) the effectiveness of monetary policy is low, situation deriven from financial markets with reduced depth that limits the effectiveness of interest rate channel and credit. At the same time this limits the capacity of the central bank to successfully use the adjustment mechanisms of the economy, leading to increasing dependence of the exchange rate and aggregate demand.

Financial stability is broadly that situation in which financial system can provide an efficient allocation of savings to various investment opportunities and can endure internal and external shocks without causing major disruption. In this case monetary policy is the efficient way to allocate resources for ensuring price stability. In a narrow understanding financial stability can be seen as the situation characterized by the lack of banking crises and a degree of price and interest rates stability. From this point of view of monetary policy has an important role and monetary policy interest rate should be used wisely so as not to cause a conflict between price stability and financial stability.

In the relation between price stability and financial stability inflation is considered the main disturbing factor, but practice has shown that low inflation is not sufficient to ensure long term financial stability. In Romania's case price stability is closely linked to financial stability. If the inflation rate depends on the strong appreciation of the currency exchange rate the erosion of long-term price stability takes place. So, in order to ensure long-term price stability, we have to carefully look at financial stability and macroeconomic indicators. Otherwise, the earnings of the disinflation process could become completely unsustainable. Based on the above arguments we can say that in order to ensure macroeconomic stability and sustainable economic growth it is essential to stimulate investment and to avoid the pro-cyclical characteristic of macroeconomic policies. *Considering the overall macroeconomic context, increasing investments in Romania necessarily involves increasing the capacity to absorb EU funds.*

During 2010 the Romanian financial system managed to cope with multiple challenges. Following the requests of the National Bank of Romania, banks increased their capitalization, the liquidity of the banking system maintaining itself at an adequate and constant value. In the private sector the crisis effects were felt very strongly (economic rebound of 7.1% in 2009 and 2.3% in the first nine months of 2010), staff adjustments and company closures of approximately 18,000 firms annually putting additional pressure on the social costs endured by the national budget. One of the "positive" effects of the current crisis is the reduce of the current account deficit from 11.6% of GDP in 2008 to 4.5% of GDP in 2009 and maintaining it at a similar level in the first half of 2010. External deficit financing was done almost entirely through direct foreign investment, even if they were reduced with about 45% compared to 2008. Companies that have benefited from foreign investment have beard the crisis easier than those who did not benefit from any infusion of capital, among the beneficiaries of capital inflows being those companies that have won and implemented projects with financial assistance grants.

Due to financial constraints caused by the current crisis Romanian companies are facing reduced profitability and lower rates in accessing financing provided by banks. Most affected by these negative effects are SMEs because they are perceived as having a higher credit risk to large firms. In June 2010 the rate of bad loans related to Romanian SMEs has exceeded 10%, but for large firms it is only 2.5%. The biggest risk that Romanian companies might face in the near future, in the context of a slow economic recovery, is an acute shortage of liquidity which is naturally endemic among economic agents.

According to central bank officials declarations, the only real anti-crisis program adopted by the Romanian rulers was the loan contracted from the IMF, EU and World Bank. This loan has solved on a very short term some of the pressing problems in Romania, but the costs implied by its repayment, including related interest payments, raises big question marks as long as the money borrowed were not used to generate added value. In this context it is clear that a other *real anti-crisis program with even higher benefits* would be *to increase the*

absorption of EU funds. These funds represent a real chance for Romania to develop its economy and secure a place in the "jungle" called "global market". This is a chance that we are obliged not to miss if we wish to be more then just an “outlet”.

3. Presentation of the structural funds allocated to Romania

Irredeemable EU funds Romania may access by 2013 can be grouped into five financial instruments, three of which are known as “structural and cohesion funds”, and the last two are known as "complementary action" destined to agriculture and rural development:

- European Regional Development Fund
- European Social Fund
- Cohesion Fund
- European Agricultural Fund for Rural Development
- European Fisheries Fund.

The study “EU Funds in Central and Eastern Europe. Progress Report 2007-2008” made by KPMG shows that the total amount corresponding to the five structural funds allocated to our country is 27.47 billion EUR. If we consider the national contribution at the amount of funds allocated to Romania we reach a total of 33.53 billion euros.

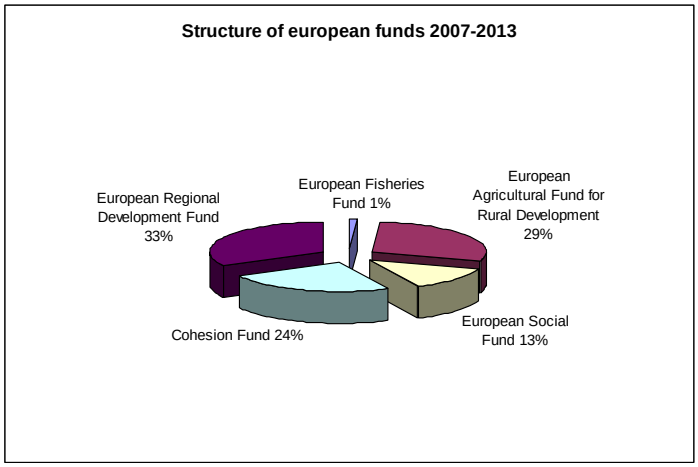
Breakdown of allocated funds is shown in the table below:

Table 1

European funds allocated to Romania in 2007-2013 (billion)

Period	2007-2013	2007	2008	2009	2010	2011	2012	2013
European Regional Development Fund	8.98	0.60	0.86	1.16	1.42	1.53	1.63	1.79
Cohesion Fund	6.55	0.44	0.64	0.86	1.03	1.11	1.19	1.28
European Social Fund	3.68	0.23	0.36	0.49	0.58	0.63	0.69	0.70
Total structural and cohesion funds	*19.21*	*1.28*	*1.85*	*2.51*	*3.03*	*3.26*	*3.51*	*3.77*
European Agricultural Fund for Rural Development	8.02	0.74	1.02	1.32	1.24	1.23	1.24	1.23
European Fisheries Fund	0.23	0.02	0.02	0.03	0.04	0.04	0.04	0.05
Total agricultural funding for rural development	*8.25*	*0.76*	*1.05*	*1.35*	*1.27*	*1.27*	*1.28*	*1.28*
TOTAL	27.47	2.03	2.90	3.86	4.30	4.54	4.79	5.05

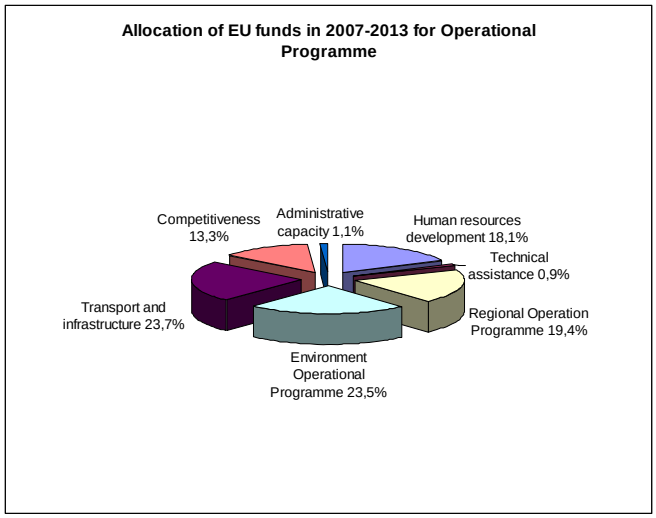
Source: Ministry of Economy.



Source: Ministry of Economy.

Figure 1. *Structure of EU funds allocated to Romania in 2007-2013*

Structural and cohesion funds assigned to Romania in 2007-2013 are worth 19.21 billion EUR, funding given to implement projects in renewing physical infrastructure, enhancing the competitiveness of Romanian companies, human capital development and increasing administrative capacity. Regarding the allocation of these funds on operational programs, as it can be seen in the chart below the infrastructure and transport enjoy the highest allocation (23.7%), the Operational Environment Program having 23.5% allocated and the Sectoral Operational Programme Increase of Economic Competitiveness having 13.3% allocated of the total funds.



Source: Ministry of Economy.

Figure 2. *Allocation of EU funds in 2007-2013 for Operational Programme*

4. Analysis of structural and cohesion funds in Romania during 2007-2010

A first analysis of the Romanian economic behavior in the first year after joining the European Union highlights the lack of Romanian's preparedness in managing and implementation of these funds, Romania recording a negative net position against the EU budget. In other words, Romania's contribution to EU budget is greater than the amount of structural funds raised in the Romanian economy.

Annual evolution of these programs is shown in Figure 3 which shows the relations established between the EU allocations for 2007-2010, the value of the projects submitted and approved and the value of projects with financing agreements signed until 31.10.2010.

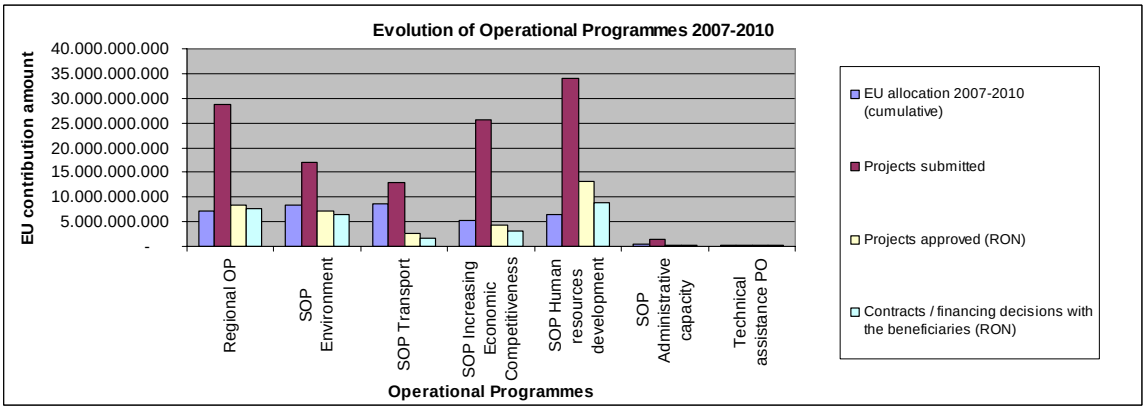


Figure 3. *Evolution of Operational Programmes 2007-2010*

It is noted that for all operational programs (except OP Technical Assistance) projects submitted exceeds the total value of EU funds allocated, but the total value of projects approved for each operational program is less than the allocations from the EU (except SOP Human Resources Development, whose funds have been allocated in advance). The effects of economic crisis are perfectly mirrored by the sub unitary ratio between the value of approved projects and those with financing contracts signed. The explanation for this is simple: some European funding recipients had no financial capacity to ensure successful co-financing and have dropped their implementation, this having adverse effects on the national economy.

According to EU funds absorption situation on October 31, 2010, submitted by the Authority for the Coordination of Structural Instruments, Romania managed to absorb 15.04% of the total amount allocated for the period 2007-2010, amount absolutely insufficient for the national economy revival. Analyzing the contraction rate of approved projects to this date we can see that this rate is more influenced by the evolution of the overall economy than by the benchmark interest rate changes for example. In other words, not just financial restrictions imposed on recipients caused an extremely low degree of absorption of structural funds, but also the negative evolution of the Romania economy due to a combination of political and decisional factors that encouraged an economical model based on irrational consume financed on borrowed money.

During the last quarter of this year the NBR Board of Administration has emphasized that "manning inflation on a downward path and resuming on a sustainable growth depends decisively on the implementation of strong and consistent macroeconomic policy mix of measures to strengthen fiscal structural reforms and increase the absorption of EU funds". This is especially important as the first nine months of 2010 we have absorbed less than 70% in comparison with the 2009 levels, and the risk for the absorption to be even lower than the level of 2009 is very high. For the Romanian economy it is vital to absorb as much as possible of the irredeemable European funds given because, according to the central bank governor, this question arises: "how will we pay the 20 billion EUR? Of 30 billion how much we should take from the EU". Also, another element that makes the absorption of European funds to be essential for the Romanian economy is the fact that this money represents a capitalization of the Romanian economy contributing to the national capital. Sharp increase of EU funds absorption is the only sustainable solution to make higher expenses during the crisis, taking into account the fact that Romania can not afford the increasing budget deficit by making major investments in the economy.

In conclusion we can say that the primary role of European funds in ensuring stability in the Romanian economy is their impact on economic growth. Practically, a gradual increase of EU funds absorption over the next five years to 60% of the total amount of funds "would ensure economic growth of 4% per year and if we absorb 100% of the EU funds there would be no more talk of recession in Romania" (Lucian Anghel, chief economist of BCR).

Acknowledgements

This article is a result of the project POSDRU/88/1.5./S/55287 „Doctoral Programme in Economics at European Knowledge Standards (DOESEC)" . This project is co-funded by the European Social Fund through The Sectorial Operational Programme for Human Resources Development 2007-2013, coordinated by The Bucharest Academy of Economic Studies in partnership with West University of Timisoara

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KNOWLEDGE AND INNOVATION AS KEY ENGINES FOR A LONG RUN SUSTAINABLE DEVELOPMENT

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Abstract. *This paper wants to reveal the importance of Sustainable Development as a new concept and also the value of sustainable development indicators (SDI). The team's preoccupation was knowledge and innovation as concepts and valuation and also some possible contributions that make clear this concept and how organizations must act. The main aim of this paper is to present a clear image on knowledge and innovation as drivers for sustainable development in our country (Romania) and to offer suggestions for achieving economic and social development through them. Competitiveness and innovation improvements ensure sustainability on the long term.*

Keywords: knowledge; innovation; sutainable development; competitive advantage, long-run.

JEL Codes: A10,A12,A13, F02, J24.
REL Codes: 8A, 8E, 19H, 12C, 15D.

1. Introduction

Knowledge is the basis of value added generated through the valuing of intellectual capital and therefore contributing to amplifying organizational capabilities and competencies.

Our society is constantly changing at an increasing speed. We talk increasingly more about the *Knowledge Economy* which is characterized by a number of factors that are different from those that characterized the traditional economy. Some of these may be mentioned like computerization, changing technologies, the growing uncertainty, globalization and the application of new knowledge. The quality and uniqueness of the knowledge component has become the most important source that someone may have for a competitive advantage.

Concepts such as intangible assets, intellectual capital, knowledge creation, basic skills and innovation are now center stage in explaining economic goods that create continuous value to an organization in exchange for financial and physical resources.

A knowledge society creates, shares and uses knowledge for the prosperity and welfare of its people.

This paper aims to explore the links between innovation and knowledge, in the general context of sustainable economic development. The first section will introduce the context of the knowledge based economy, emphasising the importance of knowledge for sustainable economic development. The second section largely summarises the importance of innovation. The article concludes with analyzing the correlation between the phenomena explored and the sustainable economic development.

Starting with the 1990's, a whole range of new theories built on the initial model were developed.

With the innovator role, entrepreneurs destroy the equilibrium in the market and lead to a continuous dynamism in the economy. The main role of knowledge transfer can therefore be summarised as "to bring in something new" (an idea, a service, a product or simply a new

way of using the factors of production). In this context, we would like to add to the idea of "*new*" another word – *sustainable*.

2. The knowledge as one of the key engines for a long-run sustainable competitve advantage

We must understand why knowledge is considered essential for economic development and how an organization can exploit it to create and maintain a competitive advantage in the market. In the past, economic growth was achieved by increasing the supply of capital to labor and the quantity of natural resources exploited.

One of the most raised arguments that states economic growth and development theories at the basis of human resources management policies regards the role of intellectual capital, intangible assets, innovation, creativity and the investments in educating and training as the most important components for the national wealth.

In the new economy, growth is based not only on increasing supply capital but also on increasing the amount of knowledge and innovations, their rapid adoption and wide dissemination. The knowledge economy is not only a knowledge-based economy but also includes: all human knowledge management processes, unprecedented dissemination of knowledge to all citizens.

The new style is knowledge management, the concept used being intellectual capital that identifies and defines intangible assets that can be turned into income – on which the organization economy depends so much nowadays.

Activities arising from the concept of knowledge society and what this entails measures (Mihai Draganescu, 2002):

- extension and deepening of scientific knowledge and the truth about existence;
- use and management of existing knowledge in the form of technological and organizational knowledge;
- production of new technology knowledge through innovation;
- an unprecedented dissemination of knowledge to all citizens through new media.

Knowledge, unlike labor, land and capital, is an asset that is assessed on the extent of use. The more they are used, the more knowledge becomes more effective and efficient. Karl Erick Sveiby, states that in the new economy, knowledge has four characteristics: knowledge is tacit, it is action-oriented, rules-based, is constantly changing. Knowledge is the only resource really relevant today. The new economy requires a rethinking of the theory of production factors. Knowledge is key component of the system of modern economic and social development. *Diffusion of innovations* and high technologies will play a key role in accelerating the importance of knowledge in the context of globalization (Sveiby, 1997, p. 25).

The new *Europe 2020* initiative focuses on smart growth means strengthening knowledge and innovation as drivers of our future growth. This requires improving the quality of education, strengthening the research performance, promoting innovation and knowledge transfer throughout the Union, making an efficient and effective use of information and communication technologies.

Innovative ideas can be turned into new products and services that can generate development and growth, more and better quality jobs and help address European and global societal challenges specific for a knowledge-based economy and society. But, to succeed, this has to be combined with entrepreneurship, finance, and a focus on user needs and market opportunities (Manuel Barroso, 2010, p. 9).

3. Innovation as one of the key engines for a long-run sustainable competitve advantage

In the last decade, all economies have begun to pay increasing importance of research and in particular to one of its components, innovation, along with basic research, applied research and technology transfer.

Innovation is generally regarded as the main engine of economic growth in today's global economy. By introducing innovations into practice products can be obtained with improved quality characteristics, service quality, new production processes more efficient and cleaner (green), improved models of the system of business management, modern management methods of force work.

There are many reasons for businesses and organizations to innovate, including: increasing market share, the conquest of new markets, improves product quality, product range extension, replacement of obsolete products, etc. to reduce environmental impact. Innovation is inextricably linked with creativity; innovation and creativity are the processes that are mutually as finding solutions to problems that arise in the process of innovation which requires creativity. Innovation covers a practical application of a marketable invention; however, innovation is possible even without a prior invention.

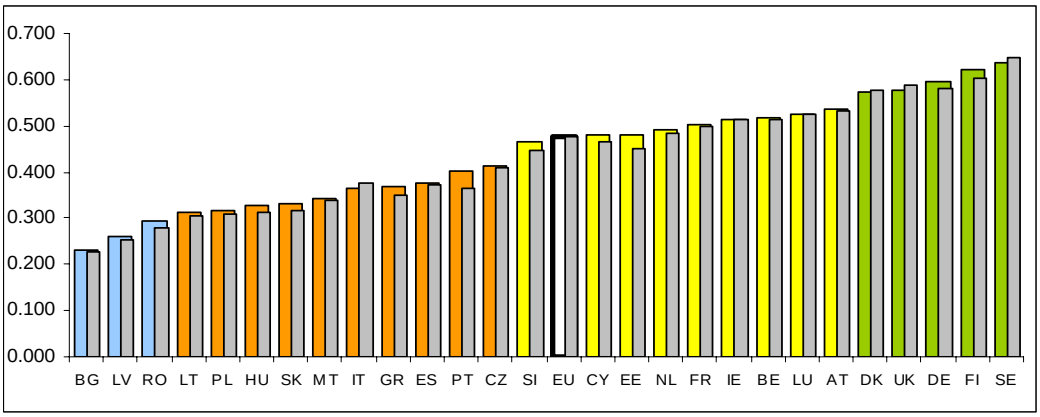
Innovation is not limited to science and technology. In a wider view innovation can be social (in social systems), artistic, administrative, business, etc. in medical care.

In sociology, innovation is defined as a process of influence leading to social change and whose effect is to reject the existing social rules and adopting new rules.

Innovation activities are the actions of scientific, technological, organizational, financial and commercial participating at their materialization and implementation (OSLO Manual, 2005). Innovation activities include, too, research and development that is not directly related to the development of specific innovations, but seeks the accumulation of new knowledge that will be needed to design modern innovative systems. The process includes a series of activities that do not have a development research character, as subsequent innovation phases of production and distribution of new products, train staff on new processes, product innovations activities, for example, new marketing methods and new organizational methods.

To assess the performance of innovation undertaken by the European countries, the *European Commission's initiative* was developed the instrument called European Innovation Scoreboard enabling performance benchmarking activities Innovation of EU Member States and other innovative nations. According to the EIS methodology, innovation performance is characterized by 29 indicators of innovation, serving in three main blocks: a) driving factor for innovation, b) activities of firms, c) results. For a summary of national innovation performances, was issued a *Summary Innovation Index,* which is an index composed of the 29 indicators to measure, its value can vary from 0 (worst performance) to 1 (highest performance).

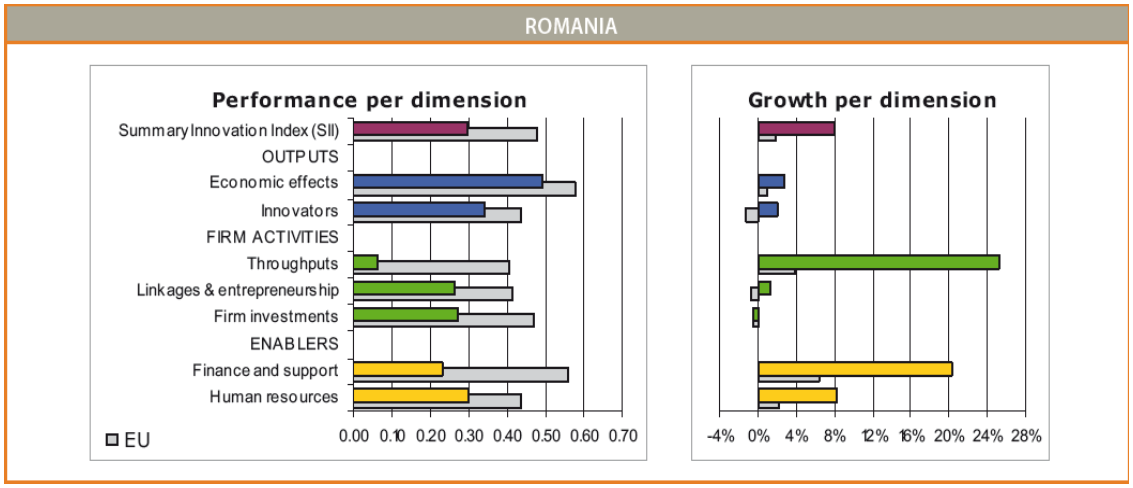
Commissioned by the Directorate-General for Enterprise and Industry of the European Commission, the *European Innovation Scoreboard* (EIS) is prepared by the Maastricht Economic and Social Research and Training centre on Innovation and Technology (UNU-MERIT). The EIS is complemented by the European Innovation Progress Report with an analysis of innovation policy developments and governance in the EU-27 Member States.



Source: European Commission, European Innovation Scoreboard (EIS) 2009, ISBN 978-92-79-14222-2, p. 12.

Figure 1. *Romania's position in the European Innovation Scoreboard*

Romania is one of the growth leaders among the Catching-up countries, with an innovation performance well below the EU-27 average but a rate of improvement that is one of the highest of all countries. Relative strengths, compared to the country's average performance, are in Innovators and Economic effects and relative weaknesses are in Finance and Support and Throughputs. As we can see from Figure 1 over the past five years, Finance and Support and Throughputs have been the main drivers of the improvement in innovation performance, in particular as a result from strong growth in Public R&D expenditures (18.0%), Private credit (25.8%), Broadband access by firms (46.7%), Community trademarks (34.5%) and Community designs (37.3%). Performance in Firm investments, Linkages & entrepreneurship, Innovators and Economic effects has increased at a slower pace.



Source: European Commission, European Innovation Scoreboard (EIS) 2009, ISBN 978-92-79-14222-2, p. 48.

Figure 2. *Romania performance per dimenison*

All countries show an absolute improvement in the innovation performance over the period. Romania has experienced the fastest growth in performance. Bulgaria and Romania are the growth leaders with overall fastest rate of improvement in innovation performance.

Performance in Finance and Support is below average for all Catching-up countries, but Bulgaria, Latvia, Turkey and in particular Romania have grown faster than average. Within the Catching-up cluster countries Romania is the best performer in Firm investments, while Bulgaria and Turkey are among the fastest growing countries.

In Figure 2 we can see that Romania is one of the growth leaders among the Catchingup countries, with an innovation performance well below the EU-27 average but a rate of improvement that is one of the highest of all countries.

In the new economy, competitive advantage will favorite belong to those who will be informed and wise enough to know and recognize that the real resources of the 21 century are knowledge, information, innovation, creativity and intellectual capital (Marta-Christina Suciu, 2008, p. 15).

4. The contribution of knowledge and innovation to a sustainable development

The new Europe 2020 Strategy will continue to place great emphasis on improving Europe's competitiveness and delivering sustainable, inclusive growth through innovation, education and improvements to the enterprise environment.

The *Lisbon Review 2010 Towards a More Competitive Europe*? presents the details driving the overall ranks and scores of the 27 EU member countries in each of the eight Lisbon dimensions. As the Table 1 shows, the countries at the top of the overall ranking tend to do well across all dimensions measured.

Table 1

Romania's position in the Lisbon Review

Economy	Final index		Information Society		Innovation & R&D		Sustainable Development	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Sweden	1	5.83	1	6.20	2	5.64	1	6.57
Finland	2	5.72	5	5.51	1	6.12	3	6.19
Denmark	3	5.61	3	5.74	3	5.33	5	6.07
Netherlands	4	5.51	2	5.81	5	4.94	6	5.91
Luxembourg	5	5.43	7	5.43	12	4.17	7	5.87
Hungary	21	4.28	22	4.12	18	3.79	22	4.50
Latvia	22	4.21	21	4.15	24	3.48	20	4.68
Greece	23	4.18	25	3.55	17	3.81	21	4.54
Poland	24	4.07	26	3.50	22	3.64	23	4.49
Italy	25	4.03	23	3.74	19	3.78	24	4.28
Romania	26	3.96	27	3.48	26	3.37	25	4.19
Bulgaria	27	3.77	24	3.63	27	3.12	26	3.82
EU 27	-	4.81	-	4.73	-	4.23	-	5.16
United States	-	5.27	-	5.79	-	6.03	-	4.59
East Asia	-	5.28	-	5.56	-	5.24	-	4.74

Source: *World Economic Forum, The Lisbon Review 2010 Towards a More Competitive Europe?.*, ISBN-13: 978-92-95044-82-1, p. 9.

Romania demonstrates a weak performance in measure of sustainable development with a score of 4.19 situating herself on the 25 position among the 27 EU countries analyzed in the Lisbon Review 2010.

The only two countries with a lower score are Bulgaria, with a score of 3.82, and Malta, with 3.80. This shows us that our country takes an extremely low account of the extent to which to ensure that improvements in the quality of life for the present generation to proceed steadily and do not come at the expense of future generations. In the index we can also see that there is low focus on the stringency and enforcement of environmental legislation, the ratification of international environmental treaties and the actual quality of the

natural environment. Regarding the *Information Society dimension* Romania is on the last position among the countries analyzed, with a score of 3.48. By looking at this dimension we can appreciate that Romania has the lowest extent to harnessing information and communication technologies (ICT) for sharing knowledge and enhancing the productivity of its industries. In the index this dimension is captured by variables such as the prioritization of ICT by the government, ICT penetration rates (Internet, mobile phones), Internet usage by business and the extent to which students have Internet access in schools. When it comes to *Innovation Romania* is situated on the 26 position, with a score of 3.37 being extremely low comparative to the European average of 4.23, Bulgaria being the only country with a lower score. From this score we can debate that Romania has a low level of policies measures to enhance innovation and also it doesn't focuses on improving the environment for private research investment, R&D partnerships and high technology start-ups, better integration and coordination, and concerted efforts for research programmes among member states, retain the EU's "*best brains*" and to attract high-quality researchers from abroad.

It will be sustainable, strengthening the environment and the actual transformations of society will be linked to their continuity and durability, to withstand the ups and downs that often accompany the democratic processes of social transformation.

The new concept of development must include the transformation of institutions, the creation of new capital, new skills and in some cases replacing the traditional institutions that will inevitably be overcome during the process of evolution and adaptation. As previously marked, development doesn't mean only to increase the resources: the return of capital, defined so extended to include human capital, they depend on the availability of complementary inputs, such as a well-managed economic environment and well-working institutions. However, it is clear that one of the least developed countries characteristic is the limitation of available resources and their proper use is an important ingredient for an effective development actions aimed at achieving those conditions essential for a successful future.

Conclusions and recommendations

We consider that today in Romania a notable shift is taking place towards rational economic arguments for supporting the importance of education, research-development-innovation and knowledge investment as key engines for a long-run sustainable economic and social development. As one of the conclusions for this paper is the direct relationship between innovation, knowledge and development. Investments in knowledge benefits both individuals and society through increased productivity and better organization of economic activity. Nowadays in Romania the objective investment in education, knowledge and innovation becomes urgent, with a focus not only on the economic issues, but also in mentality. We need to understand that without a rapid and profound progress based on efficient and effective investments in education, research-development-innovation, we cannot support a sustainable growth and development.

Acknowledgements

This article is a result of the projects: Partnerships 92116, IDEI 1224, projects financed by CNCSIS /UEFISCSU coordinated by the first author of this paper and POSDRU/6/1.5/S/11 *„Doctoral Program and PhD Students in the education research and innovation triangle"* (project on which basis the second author benefits on a scholarships as PhD candidates). The second project is co funded by *the European Social Fund through the Sectorial Operational Programme for Human Resources Development 2007-2013*, coordinated by *the Bucharest Academy of Economic Studies*.

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EVALUATION OF THE FISCAL AND BUDGETARY POLICY IN ROMANIA DURING THE CRISIS. CRITICAL ANALYSIS

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Abstract. *Economic and financial crisis revealed that government intervention is necessary and deregulation and free functioning of the market may also have deficiencies. Fiscal and monetary policies were used by the most countries, including Romania, to mitigate effects of global crisis.*

By analyzing the budgetary and fiscal measures in Romania, we observed their impact in the economy and counter the effects of global crisis. We also examined measures taken by public authorities that have the same economic conditions for Romania in order to study their comparative effectiveness.

Keywords: fiscal policy; fiscal; budgetary and fiscal measures; economic crisis; Romania.

JEL Codes: E62, E63.
REL Codes: 8K, 8M.

1. Introduction

Through this article I wanted to make a comparative analysis with the most important fiscal policy measures taken in Romania after 2008 and to analyze the effects they produce on the economy. My main objective was: determining the effects of the global crisis in Romania, analysis of the budget and fiscal policy in Romania and the analysis of the application of budgetary and fiscal policy.

To achieve these objectives I used secondary sources consisting of the literature research, legislation, studies of international organizations, articles, economic newspapers and web pages.

Economic literature considers global financial crisis and global recession has presented many common as common challenges to countries around the world; it is also the case that national economies have not been uniformly affected by the global shocks (Lane, Milesi-Ferretti, 2010). The financial crisis triggered in 2007 had the most dramatic effects in emerging and developing countries where people incomes are the lowest (European Parliament, 2010). This happened even though initially it was assumed that these states will be affected by the crisis because they are not strongly integrated into the global financial system and international trade (Hutchison, 2001, Boyd, 2005). In Romania it is expected moderation of growth (Isărescu, 2008) or only a liquidity crisis (Tăriceanu, 2008).

Countries have understood in this context that the market should be allowed to operate freely, but only if it's well regulated and there is a mechanism to control them.

Worldwide public authorities have turned to a mix of policies to mitigate the crisis and resume growth. What differs between these countries is that each had certain tools available depending on the particularities of each state and the policy or increase during the economic boom. Currently, there is a debate that raises questions about the effectiveness of fiscal policy (Andersen, 2009).

I myself tried to answer the same question throughout this paper: Was the fiscal policy effective really applied in Romania? Was this policy meant to mitigate indeed the impact of

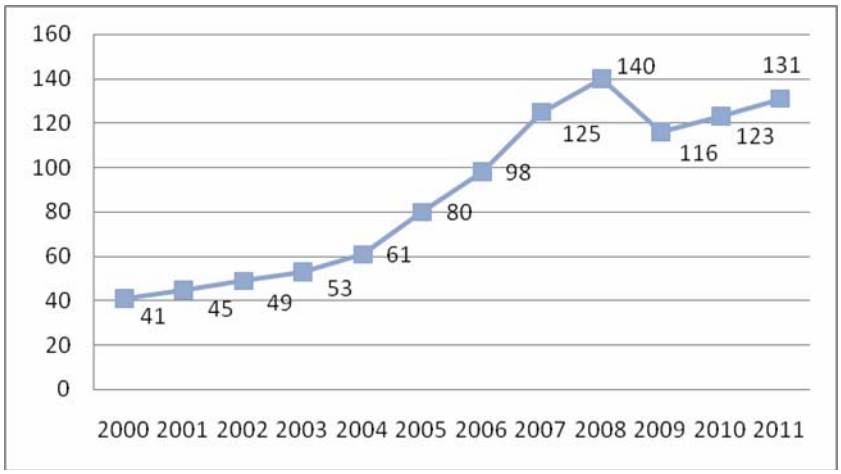
the economic crisis or just to fix past mistakes? What is noticeable is that it contradicted the largely financial theories developed so far.

2. The crisis in the Romanian context

Financial and economic crisis has started spreading in 2007 and went into the world economy in the United States of America. This in turn has affected both developed and emerging countries, and was considered by Bern Bernake, Federal Reserve chairman, the strongest after the crisis that occurred in the years 1929-1933 (Macovei, 2009). In 2008, Romania was situated on growth and policy statements emanating from that period an exaggerated optimism. But our world is highly interconnected so that any imbalance reflects all country like dominoes, the economies of other countries. However, the economic crisis is not the sole cause of the precarious situation in which Romania is. Main effects of the crisis have resulted in a reduction of export demand, deterioration of the situation on the external labor market that leads to a reduction in remittances from abroad (Peacock, 2009), reducing the volume and structure of foreign direct investment. Some authors (Chirovici, 2009) argue that Romania had entered in the crisis without the contribution of global financial crisis. They argue that Romania had unsustainable growth, primarily based on consumption, which was financed by loans. In the same time, Romania had an increase in wages unaccompanied by a concomitant increase in labor productivity, an increasing the number of public sector employees, as well as increased speculative land and housing prices.

Thus, the effects of global crisis and the "own crisis" has been extended to Romania, the most telling indicator is that GDP declined in 2009 compared to 2008 by 7.1% (Fiscal-Budgetary Strategy for the period 2011-213, 2010, p.18).

During the years 2007-2008, Romania had a period of economic overheating, being able to see this on Figure 1. After these two years of glorious national economy, there was a decrease in 2009, we expected resumption of growth earlier this year, but it is a negative growth if one compares the level of GDP reached in 2008.



*Data are projected for 2010 and 2011.
** Processing by Eurostat Database on 10/05/2010.

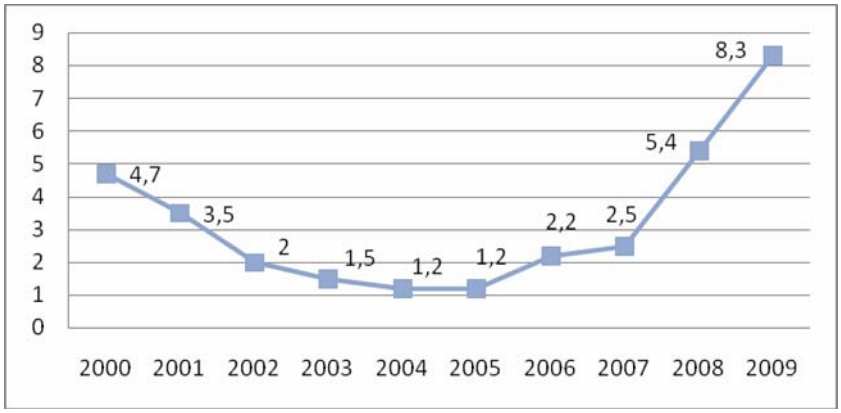
Figure 1. *Evolution of GDP in Romania during 2000-2011*

The financial crisis has been felt by the population through increased unemployment. Romania we recording a steady decline in unemployment which reached the threshold in 2008 when the unemployment rate reached 5.8%, it increased in only one year to the level of 6.9% (Eurostat, 2010). Rising unemployment has resulted in an immediate reduction in demand due to the decrease in consumption and disposable income; it is also reflected in the emergence of

social tensions at the national level. The main causes of rising unemployment have decreased due to reductions in investment and strong export orders.

Foreign direct investment was attracted in Romania because of an improved business environment and relatively low cost of labor. After the financial and economic crisis started in Romania, there was a sharp decrease of foreign direct investment. If in 2008, foreign investment share in GDP was 6.6% in 2009 their share dropped to only 3.7% of GDP (Amariei, 2009, p. 51).

Another manifestation of the financial crisis has resulted in the increasing budget deficit and public debt. Evolution in Romania budget deficit is reflected in the Figure 2. This trend indicates that the budget deficit by 2008 remained within the limits set by the Maastricht Treaty, up to 3%, and after 2008 there was a continuous increase of it. Public debt has seen a marked rise in the past two years, which is due to both borrowing from the International Monetary Fund, European Commission, World Bank and the financial market.



Source: Eurostat database after processing.

Figure 2. *Development of the budget deficit in Romania during 2000-2009 (% GDP)*

The inflation rate also witnessed an upward trend, that are expected in 2010, it will reach a level of 7.9% to 4.74% as it recorded in 2009. Inflation will increase by five percent due to changes in VAT, which is reflected by an increase in general price index. Prices in July rose 2.58% compared with the previous month, thus taking only 61% of the increase in VAT (tax-Budget Strategy 2011-2013, 2010).

3. Budgetary and fiscal policy adopted in Romania. Comparative Analysis

Fiscal policy is an integral part of economic policy of a state and includes all activities, methods, forms, techniques, tools and specific institutions through which the fiscal resources are made available to the state and distribute them for public needs. The fiscal policy interact with the fiscal policy because fiscal resources are in budget revenue and destinations data collected take the form of spending resources (Filip, 2002).

In the current global crisis the interest in the role that fiscal policy can play as an instrument of fiscal stabilization was reawakened (Bénétris, Lane, 2010, p.3). The current situation facing both Romania and other states affected by the crisis requires a fiscal policy action correlated with the monetary and fiscal budget. Policies also must act in two directions: to repair the financial system and to stimulate the demand (IMF, 2008, p. 3). The main fiscal and budgetary measures that taken in Romania after 2008 are found in Table 1, of which the most publicized were those related to the increase in VAT from 19% to 24% and reducing salaries with 25%.

What is noticeable from the main fiscal measures taken in Romania is that they were not taken in the context of the resumption of economic growth and positively influence the economy but to counter measures taken during the boom. Pre-crisis period was characterized

by appealing to pro-cyclical fiscal and budgetary policies (BNR, 2010) who have not provided a fertile ground to take quick and consistent measures during the crisis. Normally, we encourage financial theory that the period of economic growth to be erected a "tax reserves" to be used in economic downturns, when the state faced financial difficulties (Stark, 2009). This view is found in the work of Romanian financial literature, which in theory assumes cyclical budgets to achieve a balanced budget in cyclically-seeking expenditures are made linking revenue to be collected, strengthen all budget years included an economic cycle. Implementation of this alternative is even possible to continuously variable up a reserve fund to be established in the years of prosperity, and this surplus to be used to cover budget deficits during economic downturns of the cycle (Filip and Onofrei, 2000)

Table 1

Fiscal-budgetary measures taken in Romania after 2008

Fiscal – budgetary measures	Year
VAT rate reduction (from 19 % to 5 %) for the construction of social dwellings and, subject to conditions, private dwellings not exceeding 120 m^2 and a value of RON 380,000 (about € 90,000).	2009
Increase of VAT rate from 19% to 24%.	July 2010
Increase in employee's and employers' social and securities contributions rates; decrease in employers' contributions for work accidents and professional diseases by 0.5 %.	2009
Increase of the base for income tax and social security contributions by taxing meal tickets and capital gains (including interest on bank deposits).	2010
Increase in level of deductibility of voluntary health insurance (from € 200 to € 250) and threshold of deduction for employees contribution to facultative pension schemes (€ 200 to € 400).	2009
Specific types of capital gains realised by non-residents are now subject to permanent tax exemption.	2009
Reduction in dividend taxes of non-residents from 16 % to 10 %.	2009
Income as interest on term deposits and/or saving instruments are non-taxable income.	2009
Temporary tax exemptions on capital gains from trading securities on the Romanian stock market.	2009 - 2010
Deferral of tax liabilities.	January- june 2010
Wages public sector employees reduction with 25%.	2010
Reduce by 15% of most welfare payments.	2010

Source: European Commission after processing, Trends in the European Union Taxations, p. 16.

Resumption of economic growth models have as the main instruments the mix of fiscal budget policies and of monetary ones. Fiscal policy works primarily through taxes and public spending. In this respect, it is known the incorporating system stabilizers, which act on the economic situation. So if we call this model, in times of crisis, one should act on the line to reduce taxes and increase public spending. The tax cuts aimed at increasing the volume of investments that have an effect on reducing unemployment and increasing production and thus resumption of GDP growth and by increasing public spending and thus seeks to make investments to stimulate demand and consumption.

In the present case, Romania faces two major problems: diminishing returns and the continuing growth of government spending. Thus, Romania had to resort to measures to increase VAT from 19% to 24%. All the contrary of financial theory, public expenditure has not been directed towards investment, but to pay the salaries of those working in the budgetary system and pensions. Unlike Romania, other European Union Countries has been a reduction of the levy, which is due to reductions in taxes on income of individuals and businesses. This is why Romania can not resort to such an extent due to the continuous

decline in tax revenue. The share of tax revenue in GDP was only 28% in 2008, when the crisis will make its presence felt until the fourth quarter. As can be seen from the Table 2, this indicator has the lowest level compared to Central and Eastern European countries and the average of the 27 European Union member states.

Table 2

Tax receipts as a share of GDP in Central and Eastern European countries (%)

Country	2000	2007	2008
Romania	30,2	29	28
Bulgaria	32,5	34,2	33,3
Hungary	39	39,8	40,4
Czech Republic	33,8	37,2	36,1
Poland	32,6	34,8	34,3
EU27	40,6	39,7	39,3

Source: Eurostat, Taxation trends in EU, 2010.

Increased VAT was one of the measures taken by Romania to increase the amount of receipts from the state budget. Following the increase in share from 19% to 24% of VAT revenues were higher by 829 million lei (29.5%) than at the first seven months of the year and 1.26 billion respectively RON against the same period the previous year (Ministry of Public Finance, 2010). Compared with other countries in the region and the EU27 average, we see that only in Romania there were major fluctuations in other states the increase was negligent or not amended.

The call for increased taxation on economic and financial crisis is contradictory because most countries call for measures to increase demand. By tightening fiscal policy to achieve a slowing taxation of consumption by reducing real income, which is accompanied by a decrease in revenue due to lower nominal wages recorded in both the public and private sectors, diminishing the pensions and other mitigation social aids.

Tabel 3

VAT Rates in CEE countries (%)

	2000	2009	2010
Romania	19	19	24
Bulgaria	20	20	20
Hungary	25	25	25
Czech Republic	22	19	20
Poland	22	22	22
UE27	19.2	19.8	20.2

Source: Eurostat, Taxation trends in EU, 2010.

In Romania there was a reduction in personal income, unlike the EU countries where there were significant variations because these countries have had as main objective to boost consumption. In Romania, although there have been pressures for both the gradual introduction of quotas and to reduce the 10% flat tax, until the present has not operated any change. 16% tax rate of Romania is low compared with other states of Central and Eastern Europe such as Hungary (40.6%), Poland (32%) and higher than in countries like Bulgaria (10%) and Czech Republic (15%) (Eurostat, 2010).

The decrease in tax revenue led the authorities to resort to decision-loans to cover higher public spending. By calling loans public debt of Romania increase to 31.7% of GDP with 16.1% more than the previous year (The Economist, 2010).

Call for public loans is a measure that applied to most countries of Central and Eastern Europe to be able to cover its costs. Romania turned to loan agreements with the International Monetary Fund, World Bank, the European Commission. Call for loans is a measure beneficial to the economy if they are used for investments that spur production and thus to the resumption of economic growth. In Romania, however, the situation was different from theory, because the amounts borrowed were used to cover budget expenditures for unproductive purposes. Thus, the positive effects that call for loans they could have been offset by their use for purposes that do not lead to economic recovery.

Taking further the example of Romania, the government announced in February 2009, an economic stimulus package of 13 billion euro in order to counteract the effects of the crisis. Of this amount, 10 billion were allocated to infrastructure projects, but so far this stimulus package was not implemented and its effects on economic growth is negligible (EBRD, 2010, p. 18). Unlike Romania, other countries have used tax incentives to stimulate business. Serbia launched in 2009 a package loans for subsidized rates for business investment and consumer loans for the purchase of local goods. In a similar way, Macedonia and Montenegro tried to reduce the fiscal burden through selective cuts for businesses and households, while in Bosnia and Herzegovina it was reduced VAT rate for certain basic goods.

In Romania, fiscal and budgetary policies had no room for maneuver, especially due to expansionary fiscal policy used during the boom. Decreased revenues and difficult access to loans have led governments to reduce public expenditure. But the biggest challenge will come in this fiscal year and the following one. Continued IMF agreement will depend on how serious will be efforts to reduce public spending.

A strict evaluation of the effects of these measures in the economy is difficult to draw, because Romania is far from being out of the recession. A coherent assessment can be accomplished only looking at long-term effects of these measures that will result in the economy, which is too early to achieve at the level of the year 2010. Also, Romania's future economic situation does not depend exclusively on public policies taken by governments but also international macroeconomic developments.

4. Conclusions

The current economic crisis has taught us lessons that our country ought to have known already. Economies are characterized by cyclical, this is reinforced by historical experience which has shown that after a period of strong economic growth a strong census is following. Thus, I believe that we must learn to guide our budgetary and fiscal policies not by political ideology, as electoral cycles, or in relation to how much GDP is offering us. Fiscal and budgetary policies should be linked to the economic cycle, to pursue a balanced economic growth, to moderate to strong economic growth and have proper tools for action when the crisis will occur. If monetary policy enjoys a certain independence, due to the removal of government control of the National Bank of Romania, the same can be said about tax policy.

Microeconomic models have at their center *homo oeconomicus*, a rational person who knows to make the right decision, not the same thing happens when we consider the macroeconomic level. Principles that have guided the Romanian fiscal and budgetary policies were wrong and unreasonable: to spend beyond measure growth period and we used a pro-cyclical fiscal policy. During the period the decline became eminent, state action measures had reduced. Romania has had budget deficits in the boom years in which GDP growth of 6-7%, and public policy of the authorities was to achieve long-term commitments to raise salaries, pensions and other allowance, bowing from the premise that there would be increased indefinitely. Given this scenario as the basis of growth indefinitely, fiscal policy in the years 2009 and 2010 was a low margin of action. In order to bring wages and benefits to lower rates a social instability was created, because it is hard to give up a benefit once you have obtained.

Budgetary and fiscal measures taken will certainly not remove Romania from the crisis, but the beneficial effects of the wage return to a normal level, the corresponding labor

productivity, reduction of budgetary device will be felt only in the years ahead. Romania entered the crisis only after developed countries have entered this crisis too, showing intrinsic connection exists, and this interaction will be that now will remove Romania from the recenssion. In EU countries are seeing the first signs of economic recovery and member governments strengthen confidence in public finances as a factor in recovery and long-term growth (Stark, 2009).

But no matter how many lessons will be learned, experience financial crises shows that social memory is short and the crisis that some mistakes can not be excluded never be repeated (Isărescu, 2010).

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THE RELATIONSHIP BETWEEN BANKS – PUBLIC SERVICES – DECENTRALIZATION

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Abstract. *Development of public services is the effect of applying administrative reforms involving the banks and financial contribution. Decentralization strengthening and modernization of administrative structures and public services is supported by the World Bank, International Monetary Fund and the European Union, supplement the financial resources to facilitate development. To attract financing funds, local governments often resort to loans from the banks that manage the funds targeted. Money is used to supplement the income of local governments who needs loans for financing European projects. Empirical research on this way will make disclosures regarding the various types of banks involved in this process.*

Keywords: banks, public services, decentralization, loan, World Bank.

JEL Codes: H81, H83.
REL Codes: 13E, 13G.

1. Introduction

Decentralization is a process where can be best applied the principle of subsidiarity, because decisions are taken at the basic level which is in the best position to know the needs of citizens. However, for decentralization to be effective, in addition to new skills local authorities needs resources that cover costs related to their practical implementation. Ordinary financial resources of local authorities are lower than their expenditures, therefore comes the need for the local authorities to apply for loans. Nowadays, these loans are mandatory, because the public authorities don't have enough funds to co-finance the European Unions financed projects. Therefore, in this context, it can be revealed the best relationship between banks – public services – decentralization.

This paper aims to reveal the importance of the existing relationship between decentralization and banks, by analyzing the implication of the World Bank and others banks in financing at various national communities. We propose in this respect revealing the most important projects developed by the World Bank, with implications for decentralization, but without neglecting the contribution made by other banks in the process of decentralization.

2. Relationship between banks and public services

Decentralization has been consistently supported by the World Bank, International Monetary Fund and the European Union. All of these international institutions and administrative structures support the modernization of public services, providing information from various studies on decentralization and providing the necessary means to facilitate the implementation of decentralization. Decentralization creates a transfer of administrative and financial competence from the central government to the local government and is mainly

aimed to provide better public services quality at a lower price, in the same time with the modernization of the structures which are responsible for providing of services (Blaga, 2006). On the other hand, World Bank (2002), offers another definition for the decentralization process. Decentralization is a complex process that usually involves the transfer of powers and /or financial resources from a higher level of government to a lower one and from a simple perspective goes from the simple dispersion of accountability of government which is sent to its regional bodies – deconcentration – to full privatization.

Ongoing process of financial decentralization is carried out based on administrative decentralization, which involves transfer of competences from the center to the periphery, to local governments. From this perspective, fiscal decentralization is nothing else than the transfer of rights and financial management of fiscal resources involved in the context of administrative decentralization. Strongly interrelated with financial decentralization, it's found in the area of expertise it is found the concept of fiscal federalism (Oates, 1999), which postulates that there are numerous economic benefits as a result of bringing closer the public finances of people like: the size of public sector efficiency, improved allocative efficiency (as result of better relations between the services provided by public sector and the needs of local communities) and a public sector more competitive and innovative (Boex, 2009).

In the situations where the transfer of responsibilities from the Government is not accompanied by the ability to fund local communities, there is a risk of creating a largely ineffective decentralization. Therefore, local authorities depend heavily on the Government, which sets the rules, for private reserves, taxes and territory administrations often do not have access to tax revenues and funding sources to provide freedom from central authorities. Without a sufficient source of income, under local control, it is impossible to achieve a satisfactory level of fiscal autonomy to increase the efficiency of public services. Solution to meet those needs is to use financial aid came from the banks. Requested assistance from banks in general is for covering a part of the money needed for co-financing of European projects.

The role of the banks will be to help governments work with their effective parameters of money that can have with easy access. Administrative reforms can not be sufficiently well done without the contribution reliazate by the banks, some are even put through by the World Bank.

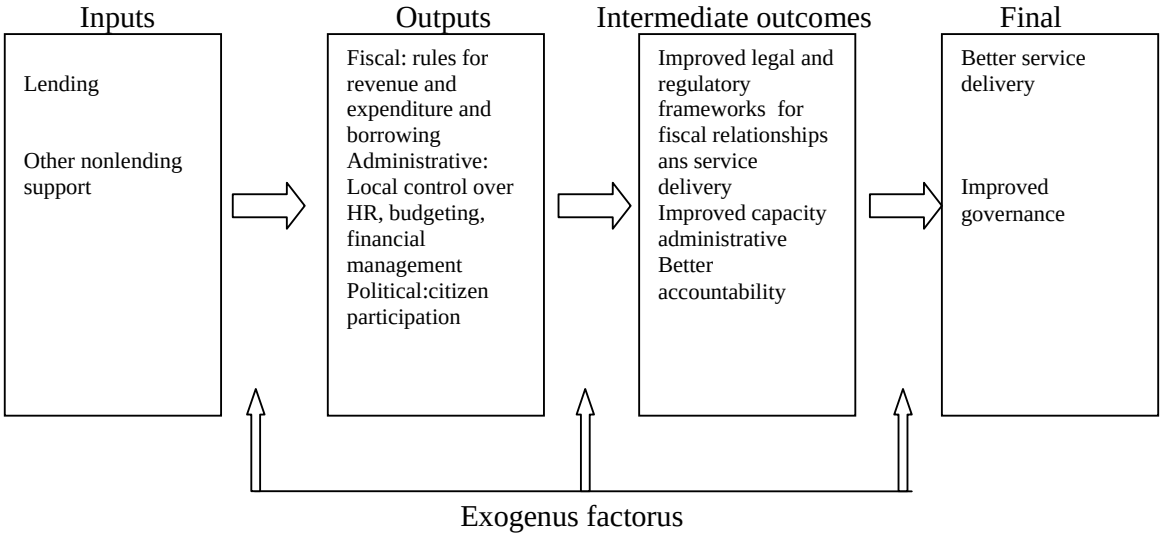
3. Actions taken by the World Bank in the decentralization process

Decentralization is becoming increasingly supported by the World Bank, International Monetary Fund and the European Union for new members. As a result, in 75 developed countries with more than 5 million inhabitants, 63 (representing 85%) have adopted "a kind of program of decentralization in the mid-nineteenth century.

Development and modernization of public realm is, in some states, the consequences of decentralization programs that World Bank is involved. Public services are a means by which governments perform their functions, and by increasing their quality improves there is a degree of satisfaction of citizens' interest. The World Bank also has developed and is involved in projects with broad spectrum issues including advice and auditing side aiming at the attainment of performance or achievement of equilibrium points in countries facing problems at the national level but also compared with other countries. The issues that we wish to highlight the actions contained within the area of decentralization from the administrative decentralization, to the effect that financial and public service development. World Bank serves a large area of member countries. For developing countries, the World Bank assistance, paying special attention to countries with weak economies, poorly developed or are in conflict and/or affected by natural disasters.

The World Bank currently has a strong program of institutional development and governance reforms has at its heart that took place in public finance, taxation and decentralization. Also, an agreement was concluded Institutions and Public Expenditure

Review (IPER) that included development of analysis and providing recommendations on improving resource allocation in the health sector, local delivery of social care, pension reform, fiscal decentralization and budgetary reforms in the legal field.
A suggestive image is shown in Figure 1. One can see the implications of actions taken by the World Bank enabling the tracking how it might help to achieve the final results as providing better services and better governance. Interim results relate to strengthening the legal framework, administrative capacity, but also an increase in sub-national government responsibility.



Source: processing by The World Bank, Decentralization in Client Countries An Evaluation of World Bank Support, 1990-2007.

Figure 1. *Framework for assessing the results of bank support for decentralization*

From the list of areas in which the World Bank is involved we can mention: human development, social protection and risk management, social inclusion, rural development, public sector governance, finance and private sector development, environmental and economic problems. Note that of the category of public sector governance include decentralization, tax policy and administration and administrative reforms.

Romania has been involved in several projects with the World Bank. Some of them were closed, others have been abandoned for some reason and another series is in the process of deployment. In total, the projects have reached 109 (worldbank.com source). According to a person's status they can have them grouped in three categories: active projects completed projects (closed), abandoned projects.

At present only 16 are active. The 16 projects, according to information made available by the World Bank, are: Social Inclusion PROJECT, Modernizing Agricultural Knowledge & Information Systems Project (MAKIS) Modernizing Agricultural Knowledge & Information Systems Project (MAKIS), Municipal Services Project, Hazard Risk Mitigation & Emergency Preparedness Project, Irrigation Rehabilitation & Reform Project, GEF Romania Integrated Nutrient Pollution Control Project, Avian Influenza Control & Human Pandemic Preparedness & Response Project, Health Sector Reform 2 Project (APL # 2) Afforestation of Degraded Agricultural Land Proto-Carbon Project (source: World Bank) World Bank will focus on public sector issues, and will go on public sector reforms, the efficiency of public spending and public services. According to data issued by the World Bank portfolio in the areas of priority distribution is structured in a balanced manner. The highest percentage is allocated to social assistance, education, health and the lowest percentage of 6% is allocated to the closure of unprofitable mines.

4. Banks – local government funding sources

As distinct from government funding, we can mention a number of banking institutions that were formed at the initiative of public institutions and the need for resources intended to supplement the necessary financial deficits needed to carry out various projects. The European Union appeared to supplement local banking institutions. One such institution was founded in Italy, the People's Bank of Ethics. The funding by local action groups - the People's Bank is instrumental ethics by which local communities manage to save and to seek financial resources to complete the necessary funds for financing projects of European co-financing or any other purely for the needs of the community.

The idea behind the Bank of Ethics is to establish a place to save financial resources; this goal is driven by a common desire for a transparent and responsible management of financial resources can meet socio-economic initiatives, inspired by the values of sustainable development and social human. Bank manages the savings of organizations, companies and institutions in general and investing in initiatives aimed at social and economic objectives that works with full respect for human dignity and the environment. In this context, the Bank of Ethics sets out to educate depositors and the parties who resort to loans, by increasing the awareness of trainers about saving their destination and encourage development of their management and entrepreneurial skills. Thus, in terms of setting up Local Action Groups for community projects aimed at accessing financing and in particular requiring public and private partners that will save funds for regional development.

The Bank is an alternative to other banks, with values based on democratic principles, transparency. As a legal form, this institution has the form of a stock cooperative company type. In providing loans to local bodies it has limited character development, loan funds intended for financing local economic development activities are included in the range of 5,000 euro - euro 15,000 and refund guarantee fund is supported by local partners that are part of the group Local Action.

Ethics Bank is set up to reject the basic rules of finance, but rather trying to reform its core values bringing a special contribution to local communities to resort to such a source of funding for local community development.

Another example of a specialized banking institution on the side of local government is granting loans Bank Dutch Municipalities (BNG). It was created by municipalities to deposit formation and administration for their benefit. He was subsequently taken over by the state taking a large percentage of shares, acting in fields such as education, social needs, public health. Bank Netherlands Municipalities do not provide customer service in the private sector only to municipalities, in particular for modernizing and improving public services. Please note that support and private funding in European countries, the Bank of Ethics, although there Dexia Bank, a similar character, is facing difficulties in implementing its core activities, such as municipal finance.

Dexia is a leading global financial services project for public and local governments. Dexia was founded in 1996, plum merger of two financial institutions, each of them leading public finance markets where we came from. In Romania, Dexia Kommunalkredit Bank (DKB) has opened an office in July 2005, focused on public sector funding has been leading the credit market for local public authorities in Romania. The difference between DKB and People's Bank People's Bank of ethics is that ethics is the first bank in Italy has financed public sector actions in the context of local associations, local action groups. Dexia Bank decided to fund the Science Hall in March with about 59 million. The amounts were awarded for achieving a range of infrastructure rehabilitation projects, social housing, public lighting and implementing integrated waste management system, creating and implementing integrated information system of local government. Dexia Bank has funded several local authorities in Romania. They were lent by this type of

loan, repaid by issuing municipal bonds. So they took more credit by the City of Targu Mures, Alba County Council, City of Suceava, with a total 117 million euros.

5. Conclusions

Our world is an interconnected, so although it may seem surprising at first glance, the banks through the financial services they offer contribute to the implementation of decentralization. Administrative decentralization, financial decentralization with its component, it is difficult to implement in the context of the financial resources to local communities are insufficient to cover all local expenses. Thus, banks with loans to be granted to local authorities for them to facilitate the performance of their duties regarding the provision of public services and public infrastructure. In this regard, an important contribution to the World Bank has projects that encourage and support the decentralization takes place in many states. This contribution is achieved through projects, through which local initiatives and implicitly encourages decentralization.

Acknowledgements

This work was supported by the European Social Fund in Romania, under the responsibility of the Managing Authority for the Sectoral Operational Programme for Human Resources Development 2007-2013 [grant POSDRU/88/1.5/S/47646].

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*** www.worldbank.org

THE ECONOMY OF VALUE - A VIABLE CONCEPT OF THE ROMANIAN ECONOMIC SCHOOL

In memory of the founding rector of the Moldova Academy of Economic Studies, of the Ph.D. Professor of the Economics School on both sides of the Prut

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Abstract. *Given the global financial crisis through which the humanity goes through today, we are also facing a crisis of theories, models, economic way of thinking, and professional training in the economic science and practice that are required by the twenty-first century, we can find an answer in the work of the late Professor Paul Bran. THE ECONOMY OF VALUE - where were put the foundations of a new theory on the value, of a new way of looking at the value, of the mechanism of its production and management and also the entire edifice of the organization of the economic activity at the micro and macroeconomic level. On this basis one can construct an appropriate theoretical model of the information society to which mankind is currently heading.*

Keywords: the economy of value; entropy-value theory; the knowledge society; the financial crisis.

The road towards a new paradigm, started by the late Professor Paul Bran even before 1989, at a time when he was concerned the financial measurement and allocation of value, through which he has seen many awkward facts of the economic theory. The explanation was given in that period, of the economic reality and the great failures (*unemployment, pollution, economic and social imbalances*) that occurred in society, both in our case *(where we used the Labor-Value Theory)* and also in countries that used the theory based on utility *(the marginal value)*.

A special place in his work has the scientific research from the economic field and the study of the fascinating financial-monetary phenomena. Everyone knows the work THE ECONOMY OF VALUE – where were put the foundations of a new theory on the value, of a new way of looking at the value, of the mechanism of its production and management and also the entire edifice of the organization of the economic activity at the micro and macroeconomic level. On this basis one can construct an appropriate theoretical model of the information society to which mankind is currently heading. Therefore, this idea can and should be made the basis of our national programs and strategies for economic recovery and development. The Economy of Value is also a small encyclopedia of sciences, not merely a classical treaty of economics. One theory which opens up new possibilities in researching the economic phenomena, in which he uses the interdisciplinary methodology in the economics research being a renowned personality, with wit and encyclopedic knowledge, and also endowed by nature with a rich insight into the observation and correlation of the natural phenomena and correlation with the social-economic and financial-monetary phenomena. He was both a scientific and spiritual treasure, treasure that is reflected in his work that puts a lot of questions on the evolution of economic phenomena and their perspective.

As he says, “Where on the work table of the Government, along with the Constitution, there is not also the Economics, the trend of society will consume more on the mermaid than moving to a reasonable future”.

Therefore – the economic reality that we want to grasp in the models of a theory change more rapidly and more profoundly than we can adapt our production models!

As the author concludes in this work, "The increasingly narrow road that the society should go on under the burden of economic, environmental, social, political restraints requires the compulsory association at the leadership of the «social machine» of the economic science which, in turn, is open to the scientific research results in all areas of our social and physical-biological existence."

Only by going beyond the economics limit he could find the theoretical and practical support for reconsidering the value model so that it reflects the changing world.

Only by broadening their scientific horizon, the economist may work with the other professionals to solve the putting back into service of the society's engine, the economical activity.

Only by associating to the mechanism for obtaining the value the processes of the natural environment and society we can give "value" to all these processes and we can respect the work of all the professionals involved in these processes.

Fundamentals of the entropy – value theory (EVT)

To bring in the contain of the economics theory concepts, hypotheses, laws, definitions, etc., says the Professor Paul Bran, it is necessary to use a rich arsenal of tools, methods and processes from the economic field or borrowed from other fields of science. For not remaining confined within the narrow boundaries of the economic field, it must be overcome the work area of his science, by this realizing a horizon broadening. On the other hand, one must be penetrated the depths of the systems contributing to the producing of the phenomenon of value *(economic, of the society and of the natural environment)*.

Thus, we reach the basic objective that is:

- Finding and grounding the symbolic generalizations under the form of the basic paradigms of the theory of value;
- Summarizing the partial models and the general model of the value production and management mechanism;
- Using paradigms and the general model of value production and management in order to explain and solve complex economic activity problems.

In the action for defining the value, the problem of the physical support must be solved. The scientific economic theory has gone over the past centuries, from the support called work in the form of socially necessary labor time, to utility or satisfaction.

In the entropy-value theory (EVT), the author chose a different type of physical support, more general, represented by the low entropy or the high degree of organization existing in natural systems.

Secondly, it was necessary to establish a relationship definition which can come into conflict with the requirements of the general laws of nature (the law of conservation and transformation of matter and the law of entropy). Using the classical notations for inputs and outputs in economic processes there have been brought the correctives which completed the inputs with the potential freely attracted from society and the environment, and the outputs with the unnecessary results in the form of wastes of high entropy.

The subject matter of the value paradigm

To understand the low-entropy value theory we need to know the mechanism of life, this mystery of systems far from equilibrium.

The living organisms maintain their life only if they attract and convert low entropy from the environment from the primary elements of matter: substance, free energy, information.

Integrated in the natural cycles of matter, the living human system is the beneficiary of a huge potential of low entropy, produced by living and non-living systems in nature. This potential allows it to exist, even if the processes it triggers in society and economy are very wasteful.

To understand the mechanism of value, the economics should acquire the findings of other sciences. It can no longer be sister with the mechanics, but will have to be related to nonlinear thermodynamics, biology, cybernetics, etc.

The general model of the entropy-value theory (EVT)

With a new openness, the economic science must build a complex model for the mechanism of obtaining value, model which includes many constants.

The construction of a model implies a well-structured project that are present in primary processes of transformation, conservation and transfer, all contributing to transforming the actual potential initially attracted recognized by EVT.

The EVT model does not exclude the final event in the life of a system, the moment of liquidation.

Linking the EVT model with the models of the other value theories emphasize the differences, but also that the model based on the entropy value incorporates the other models, leading to further knowledge, to the real preserved potential value of the obtained product.

Although that in EVT the production process is just a process of transformation-conservation-transfer and not of creation a supplementary value to the entries, it is a decisive component of the EVT model. Therefore, understanding the production process model is essential for the knowledge and assimilation of the general model of obtaining and managing value.

Decoding the primary processes of transfer-entry, processing, preservation brings further elements transfer of knowledge in the economic theory and practice.

The entry transfer as well as the exit one takes place naturally, by subscription or exchange. The sources from which is made the transfer are the most diverse, emphasizing the possibility of returning in the economic cycle the potential of the wastes. In return, the primary processing and preservation processes contribute to the relocation of low entropy from the inputs in accordance with the company profile and consumer applications. The transformed potential is preserved in the dimensions of quantity, quality and reliability of the product, always at a under one yield.

In the value theory the utility paradigm provides the following main elements

- In the mechanism of obtaining value is included the consumer, with the preferences of the results of production, these preferences in the form of Satisfaction, become an essential restriction for the producer,
- The consumer satisfaction increases with each new consumed product, but the yield of the consumer products is growing smaller, becoming zero when the saturation state is reached, then no, if it is continued the process of consumption,
- It is introduced the concept of marginal utility, helping him to pursue more operative producer the consumer reaction.

The physical support of the value in the entropy-value theory

It is required an entry into the depths to reinterpret the phenomenon of obtaining the value according to the laws and requirements of the natural science, achieving the Economical Value, a blend between the economical and physical of the value. This approach allows a substantial expansion of the area and a background investigation of the idea after which the economic phenomenon has its source far upstream of the hall of the business and the effects of the economic processes are spreading so far!

For the general public is difficult to understand how to accept that we consume a certain degree of organization.

The living systems feed with an energy conserved in these elements or in non-living and living systems. This energy appears as potential energy.

The potential is the degree of organization held by a simple or complex, level of organization that makes it attractive to be consumed by a living system.

The degree of organization resulting from economic transformation processes - conservation – transfer from the system, involved in obtaining value is packaged for value.

Given such a basis for value we avoid limiting the amount of physical support only in the categories related to human activity and behavior (work, for entropy-value theory and utility, the utility-value theory).

The main paradigm changes are:

- The inputs in the economic processes are completed with the contribution of systems and processes outside the economics;
- The outputs are permitted level not only by the production process or by consumption, but the whole process of obtaining the wide mechanism of obtaining and managing value;
- In the composition of the results are shown also the outputs in the form of unnecessary waste or results of the economic producing value system;
- The definition relationship value-entropy respects the general laws of Nature (the processing and material conservation law, the law of entropy).

The society

Unlike the natural potential, the social potential is already a product manufactured in the laboratories of the social institutions:

- Cultural and scientific information;
- The trained man;
- Administrative qualitative services.

Economics as the third system engaged in the mechanism of obtaining and managing the value includes microeconomics (with the manufacturer, the consumer market), macroeconomics (financial and banking institutions, the ministries of economy and industry), the world economy (the monetary and financial international institutions, regional and international economic institutions, etc.) and in forming the cosmos economy.

The primary processes and the complex processes specific to the general system of Nature also occur in the involved systems in the mechanism of production and managing value in the form of production, consumption process, liquidation process.

The processes of economic systems:

• The consumption process - a combination of primary processes of transformation, conservation and transfer

• The production process - a combination of primary processes of transformation, conservation and transfer

• The process of liquidation - a combination of primary processes of transformation, conservation and transfer

What are the general principles of the construction of the EVT model

Construction Rules

a) Attracting potential – of the processes taking place either outside the company, whether the consumer has entered the company during the period t0, when its elements are loaded with both international and economic potential of such services.

b) Processing of potential – processing attracted potential (Pn, Ps, PES) according to the principles and specific laws of production, obtained within the limit determined by the transformation coefficient αP t2 economic potential product type (Pep, t1) and entropy loss (included in the triangle entropy).

c) The consumption process - from the moment t. This process takes the potential type product and converts it after the principles of consumption and at a yield permit by the index α p t2.

From this process results the economic potential type services and the entropy losses.

The mechanism of obtaining value still includes a production process of tn, where the potential type services resulted from the previously consumption process retransforms and re-conserves in the value sizes of a product to the permitted level by αp t2 index tn. The level of the entered potential in the t0 moment land noted with Per we consider it the real physical value of the obtained product during the production of t1.

The communication processes in relation to the value

The communication processes from the economy in which the substance is formed by informational communication in regard to information about value take always in account the permanent and bilateral interaction between the processes of production and consumption. Each of these processes emanate useful information for those who act in the other process and the distribution and exchange processes between production and consumption grow up a series of communication links through which information circulates about value with a sign of support or from one process to another.

To obtain valuable information required by the communication processes, both in the production process and in the consumer, there is required an extensive stock of knowledge, information about the value of action using standard measurement value. Along with the information about the value of production and consumption processes are obtained also information about use value produced and requested, this information is obtained by means of quantitative or qualitative standards and is designed for economic communication processes. It is also necessary for the communication processes on value, complementing necessary the information obtained with the values standard.

The basic elements of communication process through money

Communication as process involves a transfer of information from an information source to a receiver, by means of signs. Making this process is possible with the participation of agents or persons employed in the direct and mediated knowledge, as well as other factors, synthesized by the science of the semiotics. The basic elements of a communicative process are represented by the phenomenon signified, knowing subjects, the significance or meaning, the subject vehicle and used as a sign interpreter, an issue which notes the significance or meaning, the subject vehicle and used as a sign interpreter, an issue which notes the signified meaning about the represented phenomenon passed by the knowing subjects through the sign vehicle.

These specific elements of the communicative process in general, determined for the human language, it is meet also in the communicative process through money, communication through money, being connected with the production value through information and knowledge about value of economic activity, so a proper content items communicative process with specific nuances of economic and monetary processes.

Thus, for the communicative process through money, the phenomenon signified or referent is the process of producing value.

This process, conducted in economic units of various profiles and sizes and owned collective, individual or private, create and preserve value (V) in values for the exchange and then consumption in the economy or the global market.

The research of the production value process aims to produce knowledge of value by measuring the amount of its size, for realizing this knowledge, the knowing subject must be addressed directly to the process of production or exchange.

In the communicative process through money he is represented, in most cases, of several individuals or legal entities, in the current conditions, at knowing the creation process of economic value participate the producing goods and services unit for exchange, the groups for the approval of price, the economic units or individuals that buy goods and services. In the

process of communication through money, the knowing subject necessarily also includes the banking units, which are intended to find information about the ultimate value and transfer the signal to the vehicle.

For communication through money, the sense refers to the economic and monetary information related to the size value contained in the goods and services produced in production and destined to the exchange. The information on the size value results from the use of money – the standard commodity with its standard function of prices. We obtain information in a form of a number that represents the price or how many times is the money included – the standard commodity in the produced goods and destined to the exchange, information noted in the communicative process model through money with the V symbol.

In the economic analysis, it is important the presentation of the socio-systemic objective laws of functioning of the social and technical systems, at the same time also the entropic equilibrium, determining the entropic deviations and oscillations, of an entropic balance and a of surplus of entropy.

It is also important to analyze the new systemic legalities, of dependence of the systems' potential of the systems' structures, is being discussed the administration of resonance. Are being analyzed the complex artificial and natural systems and the problems of their management.

In the light of the systemic aspect, there must be given the ways of getting out for the countries in transition from the structural and systemic crisis, the essence of modern societies and development issues.

Therefore please note that:

• The economic institutions, transport and communication, the urban and rural settlements, all these systems are like plants, entities for energy conversion from a common energy basis.

• People depend on the flow of energy to survive and are always involved in energy transformation in various products and services, working to earn their living and buying goods (changes in energy) which are then discarded (removing energy losses). This is the flow of energy, the fact of economic life.

• The institutional complex (the political and economic organizations) is so much focused and so widely that it requires more energy than it can provide to keep the system.

• Government should take measures to meet the energy needs of the poor, in the form of social pensions and other benefits.

• Unemployment is another aspect of economic life entropy. The faster is consumed the energy, more people remain unemployed. In these circumstances, the obligations of the state are growing and there is an extension of the limiting functions of social and economic disorder emerged along the line power flow.

• Even the objects of high economic value produced by the man end up becoming losses (waste), or scattered energy. An increase in productivity, in essence, is nothing else but an increase in the transit flow of energy and therefore creates a higher degree of disorder that on a long term will affect the company. The economic industrial system promotes the illusion of a more orderly world and materially more valuable, because of the priority assigned to the added value and because the disregard, with very few exceptions, of the energy dissipated and the entropy increases.

Conclusions

Building a society and a knowledge-based economy can not be achieved without economic modernization of science and human behavior directly involved in promoting these changes.

In the entropy-value theory the consumption process is only a transformation-transfer-preservation process, as is the production process that represents a fundamental component in the Model of the entropy-value theory. From these considerations understanding the

consumption process model is essential for understanding and assimilation of the general model of obtaining and managing the value.

The entropy-value theory model implies the recognition of the potential removed from the product by accepting this potential in a future production process.

This general model imposes the idea according to which the value is the result of complex processes of transformation, conservation and transfer reunited in the dynamic states of production, consumption, liquidation.

Building the model for designing the economic and social policy must be made in accordance with the requirements of the general laws of nature (the conservation and entropy laws) and to present the contribution of all systems involved in obtaining value.

In this model it is also shown the responsibility of all economic systems (which I analyzed – the budget and tax system, the capital market, the enterprise, the regional and rural development, etc.) or from the environment for achieving the value, and also the management and preservation of value, in a greater proportion in the economic cycle.

The systems engaged in the general model of the entropy-value theory are:

• The natural environment;

• The national society (with the macro-economy subsystem)

• The world society (with the global economy subsystem)

• Microeconomics (with the economic systems in the production and consumption states).

The entropy-value theory includes all the systems possible to be involved in obtaining and managing value and also the paths for crossing the natural, social and economic potential to the real value's level.

Promoting the economic policies at national and regional levels enter in the model in the subsystem – the processes in the economy, but closely correlated with the processes of society – since in this process are involved public and press institutions, etc.

A great correlation is required of all economic policies and primarily of the social policy correlated with the tax-fiscal policy, to use modern tools of public finances' management. In constructing the national economic policies, at the base must stand the entropy-value theory model, by whose applicability of the management of economic policies that will reduce at maximum the entropic losses by highlighting those phenomena that we can not take into account at the moment (losses from the society and the natural environment).

In this model a central place is occupied by the society processes that are influenced and directly dependent processes in the economy and the natural environment.

At the regional and local level we propose to apply the entropy-value theory model, giving priority to the processes of the natural environment which at local and regional contributes to the value creation and will have a major impact on the results of the processes from the economy and society. This can be achieved by building the E-government system, with reference to the economic, social, sector policies, which should include a national database of social information, with an extensive territorial network of detailed information on social issues.

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